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KEEPERS

PINE RIDGE TRAIL

Pine Ridge Ranger District
Nebraska National Forest

Roger Keepers
HC 75 Box 13A9
Chadron, NE 69337
(308) 432-4475

S93 0030

Recd 115460

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I. INTRODUCTION

Areas which have been designated as National Forests have always been used for recreation purposes. According to William C. Tweed in his publication, "A History Of Outdoor Recreation Development In National Forests, 1891-1942", even before the areas were put into Federal "forest reserves" they were used by picnickers, hikers, campers, hunters, and fishermen, individually and as families and other groups.[1] Past recreation on the Nebraska National Forest was no different. Certain Districts on the Nebraska National Forest are quite young as far as Federal ownership goes, yet recreation was present before the area was designated National Forest. Prior to Federal designation the acres on the Pine Ridge Ranger District, Nebraska National Forest, were in private holdings. During the "dust bowl" era many landowners found that making a living in the hot, dry climate of northwest Nebraska was too difficult. Many of these landowners sought economic relief by selling their homesteads to the Federal government. This situation caused the patchwork land pattern which exists on the District today.

With the patchwork land pattern, the great distance from the District to large metropolitan areas, and the relatively short time the district has been in public ownership, recreation has probably not grown as quickly as it has on other forests. This situation is changing because of the public's need to find areas not as heavily used, the area is along a major travel route to the Black Hills, and the public is just finding out about the opportunities which exist. More and more emphasis is being placed on the use of the Pine Ridge District for recreation purposes, not only by the local public but by regional and national recreationists as well. The Pine Ridge District's recreation program is coming of age. With the increased emphasis on recreation, new opportunities have arisen and along with them problems, which must be addressed.

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[1] William C. Tweed, "A History Of Outdoor Recreation Development In National Forests, 1891-1942", U.S.D.A. Forest Service, Clemson.

This paper will address a specific project which is being planned on the Pine Ridge Ranger District of the Nebraska National Forest. The project is a trail approximately fifty-two miles long between the communities of Crawford and Chadron, Nebraska. The theme for this trail is: "Linking Sister Cities through the Pine Ridge Trail". The Nebraska National Forest Land and Resource Management Plan (Forest Plan) mentions a trail of this nature but it does not fully meet the public's current needs and desires.

The project area was chosen because of: 1) its proximity to the communities of Crawford and Chadron, 2) because of the ability to route it close to Fort Robinson State Park which is rich in history between the Native Americans and units of cavalery troops stationed at the Fort (ie. the Cheyenne Outbreak lead by Dull Knife, Crazy Horse was killed here, etc.), and to Chadron State Park which was the first state park in Nebraska. Ponderosa State Wildlife area will also be along the trail route. 3) The third reason is because of the natural tie- in with the trails currently existing in the Pine Ridge National Recreation Area (administered by the Nebraska National Forest), and 4) the trail could be laid out so that approximately every 14 to 16 miles it would intersect with a forest system road, allowing those who would want to spend the night in town or at a local bed-and-breakfast that opportunity.

The first documentation of wanting to build trails on the Pine Ridge was in 1968. At that time a trail was going to originate from a proposed dam site and would work its way to the west along the Pine Ridge. The dam was never built and therefore the trail was never constructed. By 1977, due to renewed interest five miles of trail had been built. The five miles of trail were divided into two sections, one of two miles the other of three. Both the sections originated at recreation sites, but they ended at remote locations with nowhere for the recreationist to continue. Between 1977 and 1982 eighteen miles of trail were built. Trails were constructed by Young Adult Conservation Corps members and have been maintained by Forest Service force account crews on a yearly basis. These trails were all located on National Forest land, but they started and ended at remote forest locations causing access to be difficult for the casual user. No new trail construction has taken place on the Pine Ridge since 1982. A brochure on the trails of the Pine Ridge was printed in 1983, in cooperation with the Nebraska Game and Parks Commission. This publication helped to market the trails in the Pine Ridge.

Use of the trails on the Pine Ridge started slowly. Most use was by local hikers and motorcyclists. Use increased as the trails increased in length and became better through maintenance. Over the years horseback riding has become the largest recreational activity on the current trails. The trails are not only attractions for local residents, but they are attractions on a regional basis as well. Horseback riders are predominately from Nebraska, Iowa and Minnesota. Many of these riders prefer the Pine Ridge to the Rocky Mountains.

Reasons for this are numerous: 1) the location of the Pine Ridge Ranger District is at a minimum one-half day closer than forests in Colorado or Wyoming, 2) the trails are not as heavily used as on other forests, 3) the trails are better suited for equine from the Great Plains, because of more open vegetation and the steep climbs are not as extended as in the "Rockies".

II. PROBLEM STATEMENT

As can be seen from the Introduction, trails have been constructed on National Forest lands in the Pine Ridge. These trails have also received increased use over the years. But the lack of long range planning has left the trail system lacking in desirable access and trailheads which allow for more use of local community businesses for improved economic growth; and has ignored how to approach private landowners, state and county officials for cooperating on an extended trail. As these items are addressed other factors must be considered in order to complement the trail. These other items include the maintenance of the trail, coordination between the different use demands for the trail, and the ways of financing the construction and maintenance of an extended trail across so many different land ownerships. In short, what is needed is a long range plan for the Pine Ridge Trail.

III. GOAL STATEMENT

The goal of this study is to identify what needs or desires, both existing and potential, the public has for a trail and its accompanying facilities across the Pine Ridge. Then take those needs and desires and plan a trail which not only addresses what the user wants, but what the adjacent landowner feels comfortable with, the local businesses see as helping the local rural economy, and that can be constructed and maintained in a cost efficient manner.

IV. BASIC ASSUMPTIONS

1) The Pine Ridge trail will have its origins in the communities of Crawford and Chadron, Nebraska.

2) Recreation will steadily increase, meaning it is independent of economic conditions.

3) As much of the trail will be built across National Forest system lands as possible and these lands will remain in that ownership.

4) There will be a constant increase of horseback use by the physically challenged.

5) With an extended trail the recreationist will spend more time in the Pine Ridge.

6) Local economic growth will come with extended stays by recreationists.

7) No private land condemnations will be needed.

V. COORDINATION

The Nebraska National Forest is located in the states of Nebraska and South Dakota, which puts it in Region 2 (Appendix A). The Nebraska National Forest completed its Forest Plan in 1984. During the planning process the current recreation uses and projected uses were studied. At the time the studies showed that recreation was growing and would continue to grow. It was concluded that the Nebraska National Forest had recreation potential far beyond the current use. In the Forest Plan it states that the Pine Ridge Trail is currently under construction and that the trail is being built to partially offset the increased demand for dispersed recreation.[2] It goes on to say that horseback riding will be a major recreation activity for the trail. Providing access to the physically challenged was also considered during the forest planning process. It was determined that access was not acceptable for the physically challenged. Because of this condition, the Forest Plan states that usability of the forest resources by the physically challenged will be improved.[3] Since the completion of the Forest Plan a representative from Physically Challenged Access to the Woods (PAWS) has evaluated some of the major facilities in the community of Chadron and has taught a number of Forest Service personnel how to evaluate facilities. This will help in the development of all facilities associated not only with the Pine Ridge Trail but in all projects.

The expected average annual outputs up to year 2030 are also listed in the Forest Plan. The following table is what the Forest Plan objectives are for certain time periods up to year 2030.

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[2] Nebraska National Forest Land And Resource Management Plan, U.S. Government Printing Office, Washington D.C., 1984, II, "Management Situation", pp. 19,33.

[3] Nebraska National Forest Land And Resource Management Plan, U.S. Government Printing Office, Washington D.C., 1984, III, "Management Direction", pp. 3.

Table II-9. Current Outputs, Projected Demand, Supply Potentials

Activity	Units Avg Annual	1981-1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
Developed Rec. Use	*	54.0	57.0	69.0	71.0	74.0	77.0
Dispersed Rec. Use	*	232.0	233.0	375.0	388.0	401.0	414.0

*Thousands of recreation visitor days

The land area inside the administrative boundary of the Pine Ridge Ranger District has also been broken down by using the "Recreation Opportunity Spectrum (R.O.S.). The Recreation Opportunity Spectrum is a system which expresses recreational opportunities in terms of activity opportunities, setting opportunities and user experience opportunities. When all three of the opportunities are considered at one time, they give use a full range of land classifications. The different land classifications are:

Recreation Opportunity Spectrum

Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban

These classes give an indication as to the recreational opportunities which are present on the particular piece of ground to which they are applied.

The Pine Ridge Trail (Appendix B) would fall under four of the six classes listed above. The classes with the trail passing through them are "Roaded Natural," "Semi-primitive Non-Motorized," "Semi-primitive Motorized" and "Rural." These are listed in descending order of the number of miles of trail per class. Even though "Roaded Natural" is the class in which 61% of the trail passes, the feeling of either semi-primitive motorized or nonmotorized is greater. This is due to the actual trail location. In many places the trail follows a draw bottom or ridge in which there is little evidence of the sights and sounds of man which is out of character for the "Roaded Natural" environment. Descriptions of the four R.O.S. classes can be found in Appendix C.

The Nebraska National Forest is further broken down into Management Prescription areas. These areas have different management emphasis applied to them. The Pine Ridge Trail traverses three of these Management Prescription areas. The three areas are: 1) 4E, this area emphasis high quality wildlife habitat, continue current livestock grazing and allows O.R.V. (off-road vehicles) use. 2) 6B, which has an emphasis of intensive livestock grazing, continuance of current wildlife habitat and this too allows for O.R.V. use. 3) 10H, in this area the emphasis is on National Recreation Area Management. Management in the N.R.A. is for the continuation of existing primitive and semi-primitive recreational use in a natural environment. The 10H prescription area has also been closed to public use of motorized vehicles. For a full description of the management activities within the three areas see Appendix D for Management Prescriptions 4E and 6B. See Appendix E for the management of the 10H area. No changes were made to the Forest Plan for recreation purposes until Congress designated the Soldier Creek Wilderness and Pine Ridge National Recreation Area. Amendment Number 1 incorporated management activities, general direction, and standards and guidelines for the Wilderness and the National Recreation Area (N.R.A.) into the Forest Plan. Since the Pine Ridge Trail goes through the N.R.A. and the management for the N.R.A. will directly affect planning the trail outside its boundaries, segments of Amendment Number 1 are found in Appendix E. In 1988, the Forest Plan was given its 4th amendment which gave direction in applying the "Recreation Strategies to the Nebraska National Forest" (Appendix F). Many of the things which the Pine Ridge Trail will do (improve public access for hunting and hiking, allowing the explanation of interpretive services, providing barrier-free facilities, etc.) are mentioned in this amendment. The "President's Initiative on America's Great Outdoors" (memorandum to President's Initiative is found in Appendix G) is also addressed by putting in the Pine Ridge Trail. In the Initiative the President said he wants to see an increase in partnerships which build on local economics and to increase the nation's outdoor program.

Not only were the Forest Plan, Recreation Strategy and President's Initiative used, but planning was also completed by using the public. Meetings were held with regional user groups to determine what the Forest Service could do to improve the recreational opportunities of the public. At the end of each meeting the participants were asked to prioritize all of the projects that they supported. The Pine Ridge Trail was one of the suggested projects and was prioritized as in the top three. Using the public in this manner had a number of benefits: 1) the public told the Forest Service what they wanted and not the other way around; 2) there was greater support from the public in doing the projects because they selected them; and 3) a basis was established for finding partnerships for projects. Since the Pine Ridge Trail made the top of the public's list, this project is going to be nominated as one of the Forest's CIP projects. A number of interested partners have talked with the Forest Service about things that they could do.

Planning of the Pine Ridge Trail has so far taken the path as shown below:

Forest Service	Others	Public Involv. Dates (Mo/Yr)
I. Regional Plan		
1) Nebraska Nat'l Forest Plan	Public Involvement	06/1979
A) Recreation Opportunity Spectrum		
B) Management Areas 4E, 6B		
C) Amendment 1-Mgmt of Wilderness and N.R.A.	Public Involvement	04,07&12/1987
D) Amendment 4-Recreation Strat.	Public Involvement	03/1989
II. Public Recreation User Meeting	Public Involvement	02/1991

Although meetings with committees and working groups were used in the planning, so were individual contacts during the entire process. A horseback ride is planned this summer, with the public invited, to show the public where possible trail locations could go.

VI. METHODOLOGY

The development of this plan addresses two major aspects. The first is what does the recreationist want and need on a trail which is approximately fifty-two miles long. Second, is there the capability to put in this type of trail on the land and will it conflict with other resources. To get involvement from the public on their needs and desires, a number of public meetings were held in different communities. These meetings not only included the general public but other agencies as well (i.e. State Game and Parks, County Commissioners, Economic Development organizations, etc.). It was during these meetings that the public brought up what they wanted. The following is a list of items they came up with:

(Results are listed by the public's priority)

1. Improve the rural, local economy.
2. A continuous trail from Chadron-Crawford, Nebraska.
3. A trail system that accommodates hikers.
4. A trail system that accommodates equestrians.
5. A trail system that accommodates mountain bike riding.
6. Overnight facilities.
7. Good access.
8. Trailheads with room to park and unload equine.
9. A trail system which accommodates not only multi-day trips but single day outings as well.
10. Don't interfere with the wildlife in the state's wildlife area.
11 Good signing, not only to and from the trailheads but along the trail as well. This would be directional, distance, land ownerships and some regulatory signs.
12. Retain the semi-primitive, natural environment.
13. Keep costs reasonable.
14. Toilets.
15. Access for the physically challenged (see Appendix H as one example).
16. Good maintenance.
17. Keeping certain activities out of sensitive areas (soils) or just off certain lands (this was mainly directed at motorcycles).

18. Keep trails to a difficulty level which makes it challenging but usable.

19. Use scenic overlooks where available.

All of the items the public listed were then evaluated against the conditions on the ground (i.e. landownership, other resource uses, other suggested wants and needs, etc.).

VII. OPPORTUNITIES AND CONFLICTS

The solution in developing a cross-country trail which the recreationists desire, is to match it with the capabilities of the land and the resources. To see the overall picture, one must have a description of the land and the current resources in the trail study area.

As stated earlier, the land which makes up the Pine Ridge District was acquired in the 1930's during the "Dust Bowl" era. The Pine Ridge itself is a large crescent shaped escarpment in the state of Nebraska which is approximately 150 miles long. The Pine Ridge Ranger District has only about one-quarter of the total acreage across the Pine Ridge escarpment, although the Ranger District is a little over half the acreage of the Pine Ridge escarpment between the communities of Crawford and Chadron (Appendix I). The rest is in private or state (school sections, state parks and wildlife areas) land holdings. The trail study area is bisected by roads (state highway, county, forest system and two tracks) and a number of major drainages which run south to north. Topography is not what people envision when they think of Nebraska. The landscape is very broken with moderate to wide ridge tops and steep narrow draws. Elevations range from 3,600 to 4,600 feet.

Vegetation in the Pine Ridge is also quite unique. Along the very narrow ridge tops and along the side slopes are native growing ponderosa pine trees. These trees are moderate to large in diameter and average 55 feet tall. The draw bottoms are especially interesting. Ponderosa pine can be found scattered in the draw bottoms, but most of the trees are hardwoods. Most of the hardwoods are cottonwoods, ash, boxelder and hackberry with a few small pockets of aspen and burr oak. American elm was very prominent until the Dutch Elm disease struck. Now most of the large skeletal remains of the elm serve as wildlife snags in the draw bottoms. The large flat ridges between the draws are predominately grass pastures (meadows) with few if any large trees in them. With the combinations of terrain and vegetation much diversity can be found.

Soils in the Pine Ridge area are Canyon-Bridget-Rock outcrop associations.[4] Canyon soils are on the ridge tops, side slopes and sides of the upland drainages. Bridget soils are on the colluvial foot slopes. Rock outcrops of sandstone are intermingled with the Canyon soils (see Appendix J). Canyon soils are shallow and well drained which formed from material weathered from sandstone. Erosion hazard is moderate to high. Bridget soils, on the other hand, are deep, well-drained soils that formed in loamy colluvial and alluvial sediment on foot slopes. The erosion hazard on the Bridget soils is moderate.

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[4] Ragon, Worth, Sherwood, and Fausch, Soil Survey of Dawes County, Nebraska, University of Nebraska, Lincoln, 1977.

Wildlife is as diverse as the vegetation. Large numbers of White-tail and Mule deer, Rocky Mountain Elk, Bobcats, and a few scattered Mountain Lion roam the Pine Ridge. Merriman's turkey is very abundant, along with grouse. Golden Eagles and occasionally a bald eagle can be seen. Numerous small mammals (i.e. prairie dogs, chipmunks) and song birds (i.e. common nighthawks, morning doves) can also be seen and heard. Studies are continuing or starting in the summer of 1991 to verify the presence of threatened and endangered species on the Pine Ridge (i.e. swift fox, and blackfooted ferret). Stream fisheries in the Pine Ridge are good for the "Great Plains" area. The live streams will sustain populations of trout and the state also has an avid stocking program.

To start looking at the proposed project I will list what resource activities are currently taking place on the trail study area and then list some that might pop up in the next five to ten years. Items listed are only ones which might affect the proposed trail use and the surrounding area:

1) Cattle grazing and its associated necessities. The livelihood of grazing cattle has been the dominate use activity on the Pine Ridge since white man moved into the area. Grazing cattle means fencing, watering (either out of tanks filled by windmills or out of the live streams), vehicles moving materials around pastures, etc. This activity will continue in the future.

2) Tree removal has not been extensive yet there is evidence of past cutting. The forest is currently managing its tree vegetation by using tree cutting and prescribed fire. Both of these methods will leave evidence behind that there was some manipulation of vegetation. All of the

cutting has been done through thinnings and sheleterwood cuts which ensured not all of the trees were removed in an area. There have not been any clearcuts on the Pine Ridge Ranger District. It should be assumed that harvesting trees and prescribed burning will continue in the future.

3) An activity in which humans have little control in this ecosystem is that of wildfire. The typical "Great Plains" wildfire is very evident on the Pine Ridge District. The grass grows thick and tall, the climate is hot and dry, and those things combined with frequent lightening storms spell large fires. The sites of three past major fires lie along the proposed trail.

4) With a major trail system on the Pine Ridge District it is hoped that someone will take the opportunity to start up outfitter/guide services which do not currently exist on the Pine Ridge District. The Pine Ridge Trail will hopefully, directly or indirectly, effect overnight facilities by allowing the local public to construct campgrounds or start up "Bed and Breakfasts" to accommodate the trail users.

5) Current recreation activities (Appendix K) do not cause conflict with each other because use of the existing trail is very light. With an expanded trail and increased use, conflicts may arise (i.e. between equestrian and mountain bike riders) which will take some mitigation through education/information and separation in timing and/or space.

6) Wildlife habitat will continue to play an important role on the Pine Ridge District. The roles of woody draws/riparian areas, grass pastures,

edge effect and size class diversity are important factors which will be carried into the future for management purposes.

7) Hunting for deer and turkey is very popular on the Pine Ridge District. Deer season starts in mid-September and goes through December for archery hunters, and for regular firearms the season is from about the second week in November to the end of the third week in November and also from the first week through the third week in January. Turkey season extends from October to about the end of the first week in November. All hunting activities will also continue in the future.

8) The minerals activities currently on the district, although present, are not in close proximity to the proposed trail. With the terrain in the vicinity of the trail being so rough it is assumed that this activity will not affect the user or the trail.

Table 1: Ranking of Conflicts and Mitigations

	Horseback Riding	Hiking	Mountain Biking	Possible Mitigation Measures
Cattle Grazing	3C	2C	2C	Fencing, Interpretation Signing, Water Gaps
Tree Cutting	2B	2B	2B	Buffer Strips, Education Interpretation, Educ.
Wildfire	1C	1C	1C	Education, Signing, Management
Economic Development	3A*	3A*	3A*	
Recreation Activities	2B	2B	2B	Signing, Education, Limited Use
Wildlife	2B	2B	2B	Interpretation, Timing, Relocation of Use

Table 1: Ranking of Conflicts and Mitigations
(continued)

	Horseback Riding	Hiking	Mountain Biking	Possible Mitigation Measures
Hunting	2B	2B	2B	Education, Signing Brochures

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1 - High Degree of Conflict	A - Easily Mitigated
2 - Moderate Degree of Conflict	B - Moderately Mitigated
3 - Low Degree of Conflict	C - Difficult to Mitigate

* Economic development will not be adversely effected; on the contrary, the trail should benefit the local economy. The problem may be that once the trail is completed the public will have to find out about the available opportunities and the use the area which would benefit the local economy.

Public input was utilized to rank the conflicts and mitigations listed above. All of the items listed above have the potential to create conflict with trail recreation.

Following is a list of opportunities and desires for the Pine Ridge Trail and the needs associated with specific users:

1. Equestrian Use

The following minimums are desirable:

A. Good access to trailheads.

B. Adequate parking (locations, size) and trailhead facilities.

C. Overnight facilities (either Forest Service camping allowed/furnished or furnished by others).

D. Corrals at overnight areas or at main trailheads.

E. Hitching rails at trailheads and at certain spots (ie. overlooks) along the trail.

F. Arrange for a 12-16 mile per day ride which ends at a point that allows options for staying overnight in town, at a local "Bed and Breakfast" or nearby camping facility.

G. Guarantee access across private, state and county land.

H. Ensure that the trail crosses through numerous ecosystems and along areas which afford the rider a pleasant view.

I. Provide the riders with a reasonably safe environment (ie. provide signs at road crossings, construct and maintain the trail to the standards and guides listed in the Trails Handbook, FSH 2309.18, Sections 2.31 and 2.33, sections are found in Appendix L).

J. Layout the trail, and where it intersects with other resource activities, interpret those activities.

K. Provide well marked trails and signing (ie. direction, mileage landownership, ect.).

L. Keep trails maintained.

M. Coordinate with other resource activities along the trail to help mitigate any problems before they arise.

2. Hiking Use

The following minimums are desirable:

A. Good access to trailheads.

B. Adequate parking (locations, size) and trailhead facilities.

C. Overnight facilities (either Forest Service camping allowed/furnished or furnished by others).

D. Arrange for the trails to be a length which facilitates day use, overnight and multiple day hikes. Provide access from the termination points that allow use of local community facilities.

E. Guarantee access across private, state and county land.

F. Ensure that the trail crosses through numerous ecosystems and along areas which afford the hiker a pleasant view.

G. Provide the hiker with a reasonably safe environment (ie. provide signs at road crossings or areas at high risk, construct and maintain the trail to the standards and guides listed in the Trails Handbook, FSH 2309.18, Sections 2.31 and 2.33).

H. Layout the trail, and where it intersects with other resource activities, interpret those activities.

I. Provide well marked trails and signing (ie. direction, mileage, landownership, ect.).

J. Keep trails maintained.

K. Coordinate with other resource activities along the trail to help mitigate any problems before they arise.

3. Mountain Bike Use

The following minimums are desirable:

A. Good access to trailheads.

B. Adequate parking (locations, size) and trailhead facilities.

C. Overnight facilities (either Forest Service camping allowed/furnished or furnished by others).

D. Arrange for the trails to be a length which facilitates day use, overnight and multiple day hikes. Provide access from the termination points that allow use of local community facilities.

E. Guarantee access across private, state and county land.

F. Ensure that the trail crosses through numerous ecosystems and along areas which afford the rider a pleasant view.

G. Provide the rider with a reasonably safe environment (ie. provide signs at road crossings or areas at high risk, construct and maintain the trail to the standards and guides listed in the Trails Handbook, FSH 2309.18, Sections 2.31 and 2.33).

H. Layout the trail, and where it intersects with other resource activities, interpret those activities.

I. Provide well marked trails and signing (ie. direction, mileage, landownership, ect.).

J. Keep trails maintained.

K. Coordinate with other resource activities along the trail to help mitigate any problems before they arise.

VIII. POSSIBLE ALTERNATIVES

Following are the Alternatives which will be considered in trying to accomplish the Pine Ridge Trail. One "Preferred" Alternative will be selected from the following and will be the one used to complete the project. All three of the recreation user activities will be evaluated against the other resource activities in each Alternative. If the other resource activities do not effect the recreation users activity, no mention will be made of them.

Alternative #1 - Forest Service Completes Work Alone - On All Lands

This alternative is designed so that the Forest Service would fund and do all the work to complete the trail. A number of advantages and disadvantages show up in this alternative.

The Forest Service, by itself, would have difficulty in acquiring access at all but one of the proposed trailheads. The desired trailheads which would cause problems are located on private land with Forest Service land a minimum of 1/2 mile away. The Forest Service has options for acquiring the land needed for the proposed trailheads. One option is to acquire it through an easement directly with the private landowner. Some landowners are willing to cooperate, but others may be reluctant to deal with the Forest Service in matters of this nature. The landowners would be reluctant to allow the "public" on their land just to appease the government. The very last option that the Forest Service would want to look at is condemnation to provide user access to the National Forest lands. This option is available if all other reasonable options and alternatives have been exhausted. The condemnation alternative may get the Forest Service the needed access for the recreation users, but it would drastically hurt the excellent working relationships the Forest Service currently has with the local community. This alternative would also need the Forest Service to do all the research to determine what easements and right-of-ways currently exist.

The one proposed trailhead on National Forest lands would require gravelling three miles of road, constructing a parking area, putting in a toilet and all accompanying facilities (corrals, table, fire grates, etc.). If the construction of overnight facilities is paid for and constructed by the Forest Service, the facilities would remain totally on National Forest System lands along the West Ash Creek Road. This would be costly, but revenue could be collected from the users. If the Forest Service constructed a major camping facility, it might be viewed that the Forest Service was trying to compete with the two local State Parks (both within a 15 mile radius of the proposed camping site.) The construction of the camping facility would also deter the public from creating private opportunities.

Corrals and hitching rails would be built at trailheads and overnight facilities to board the recreationists' equine. Placement of these corrals would be within sight of the camping facilities for security purposes. The Forest Service would be flexible in where to layout the trail on National Forest land in order to facilitate safe and accommodating trails for hikers, equestrians, and mountain bike riders. Access problems would again arise when trying to cross private, state and county lands. Easements will be needed through these non-Forest Service lands. The Forest Service would take on the task of constructing, signing, and maintaining the entire trail. The Forest Service would have the opportunity to evaluate additional proposed sections of the trail on a project by project basis. Addressing and attempting to resolve conflicting uses and coordinating between other resource activities will be totally the responsibility of the Forest Service.

If all the planning, work, and funds are provided by the Forest Service for the trail system (alternative #1), the system will be constructed to a medium to high level and will be maintained in the same condition. All of the minimum requirements for all three trail uses can be met in this alternative, assuming access can be gained. The local community will benefit economically from the trail's existence, but there will be little feeling of ownership by the public.

Alternative #2 - Partners and Forest Service Work Together

This alternative would allow the government and the public to work together to create the Pine Ridge Trail. With this alternative a number of beneficial opportunities exist.

When working as partners, the access situation would be addressed from two stand points. The Forest Service would address the access problems of improving the actual use on the trail, getting the user to and from the trailheads, and mitigating problems which may arise between recreation users' needs and other resource activities. The partners (ie. Economic Development Corporation, local recreation user clubs, etc.) would work on getting access from landowners other than the Forest Service because the trail has benefits towards economic diversity and improvement in the local area. Many of the partners are local people who have lived in the adjacent communities for many years. This helps in acquiring easements because a person has a tendency to accept an idea if his relatives and friends think that idea is good. The public pressure in these cases can be a driving force in gaining the desired easements. The county might also be a possible partner in purchasing easments that have too many stipulations which the Nebraska National Forest can't accept.

Partners would also help in many other ways. They would do research for existing easements and right-of-ways. They would assist the Forest Service in planning, locating, constructing, maintaining, and signing the trail, trailheads and other appropriate facilities. Partners would also help market the trail through brochures, magazines, and articles. Education of land use ethics would be taught through both the partners and the Forest Service. Addressing and resolving problems between conflicting uses and coordinating between other resource activities would remain the responsibility of the Forest Service.

This alternative has many advantages. The trail would be constructed and maintained at a medium to high level. All of the minimum needs for all three main recreation uses would be met. The local community will benefit from the increased use of the area. The local community will also have a feeling of ownership in the trail since they had a part in creating and caring for it.

Alternative #3 - Forest Service Completes Work Alone - Only Forest Service Lands

This alternative would have the Forest Service construct and maintain the trail on National Forest System lands only. The Forest Service would not participate in any activities on private, state, or county lands. This would leave the planning, construction, maintenance and signing of the trail and trailheads on these lands to the "public" who have little knowledge of the process of creating a trail and who do not have the organizational background to complete such a project.

This alternative would mean that the Forest Service would still have a program of planning and constructing a trail, although the needs and desires of the "public" would not be met. The trailheads on private lands and trails across private, state, and county lands would be completed in a haphazard manner. Some landowners may even decide to do nothing at all. The trail would still be a segmented system with gaps between user areas. The economic benefits to the local community would not be as great because the trail would not attract additional users and would reduce the amount of time spent in the local community.

The segmented trail system would not give the public the type of prolonged remote experience they are looking for. The trail system would not be much different than it is now.

Following is a matrix which shows the ability of each alternative to meet the different resource objectives:

Ability To Meet Resource Objectives

	Horseback Riding			Hiking			Mt. Biking		
0-Can't meet or Lowest	Alt.	Alt.	Alt.	Alt.	Alt.	Alt.	Alt.	Alt.	Alt.
5-Fully meets or Highest	1	2	3	1	2	3	1	2	3
Cattle Grazing	4	4	4	4	4	4	4	4	4
Tree Cutting	4	4	4	4	4	4	4	4	4
Wildfire	3	3	3	3	3	3	3	3	3
Economic Development	3	4	2	3	4	2	3	4	2
Other Recreation Activ.	3	3	1	3	3	1	3	3	1
Wildlife	4	4	3	4	4	3	4	4	3
Hunting	4	4	3	4	4	3	4	4	3
Most Econ. To Government	1	4	2	1	4	2	1	4	2
Total	26	30	22	26	30	22	26	30	22

As can be seen, Alternative #2 meets the resource objectives better than the other two and is also the most economical for the Nebraska National Forest.

IX. SELECTION OF PREFERRED ALTERNATIVE

The Preferred Alternative is the one which has the greatest overall benefits and has few conflicts. It provides the greatest benefits while keeping costs down.

The Alternatives were discussed and evaluated on an interdisciplinary team basis. Factors considered in determining the Preferred Alternative were: 1) provides the greatest social benefit, 2) provides the greatest economical benefits to the local rural economy, 3) keeps the financial responsibilities of the government down, 4) has the ability to produce the desired wants and needs of the recreation user, 5) gives the community a feeling of ownership in the trail.

After all of the factors were evaluated, Alternative #2 stands out as the best alternative to pursue. Alternative #3 would be the easiest for the Forest Service because of complete control and no concern about trails and trailheads on other land ownerships. Alternative #3 would not meet the public's desires of a continious trail system, though. Alternative #1 would allow the Forest Service full control, but much additional time and money would have to be spent in research of easements and right-of-ways, contacting landowners, trying to purchase easements, and doing all of the construction and maintenance of the trail.

It is the recommendation of this paper to pursue Alternative #2 and to acquire as many partners as possible to effectively plan, construct, and maintain trails, trailheads, and all accompanying facilities from Chadron to Crawford.

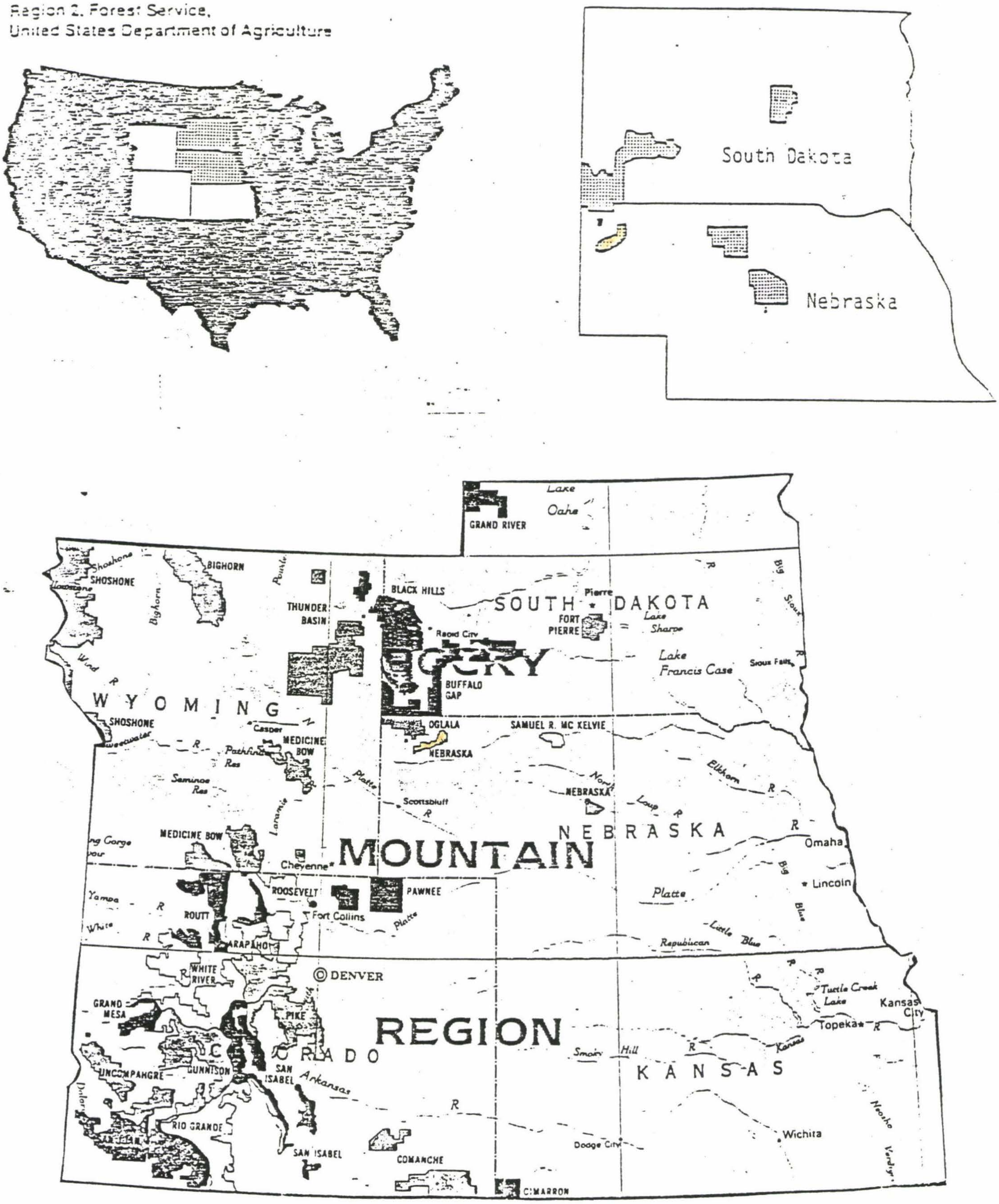
A plan of operation for the Pine Ridge Trail should be completed by December of 1991. This plan will give guidance and scheduling to ensure smooth implementation of the trail project. This paper has intentionally not addressed the specific layout and design of the physical structures and trail system on the ground. These items are always changed at the last minute because of use requirements and site specific limitations. The intent was to evaluate the needs of the recreation user, the other resource activities on the ground and actually how to accomplish the overall trail project.

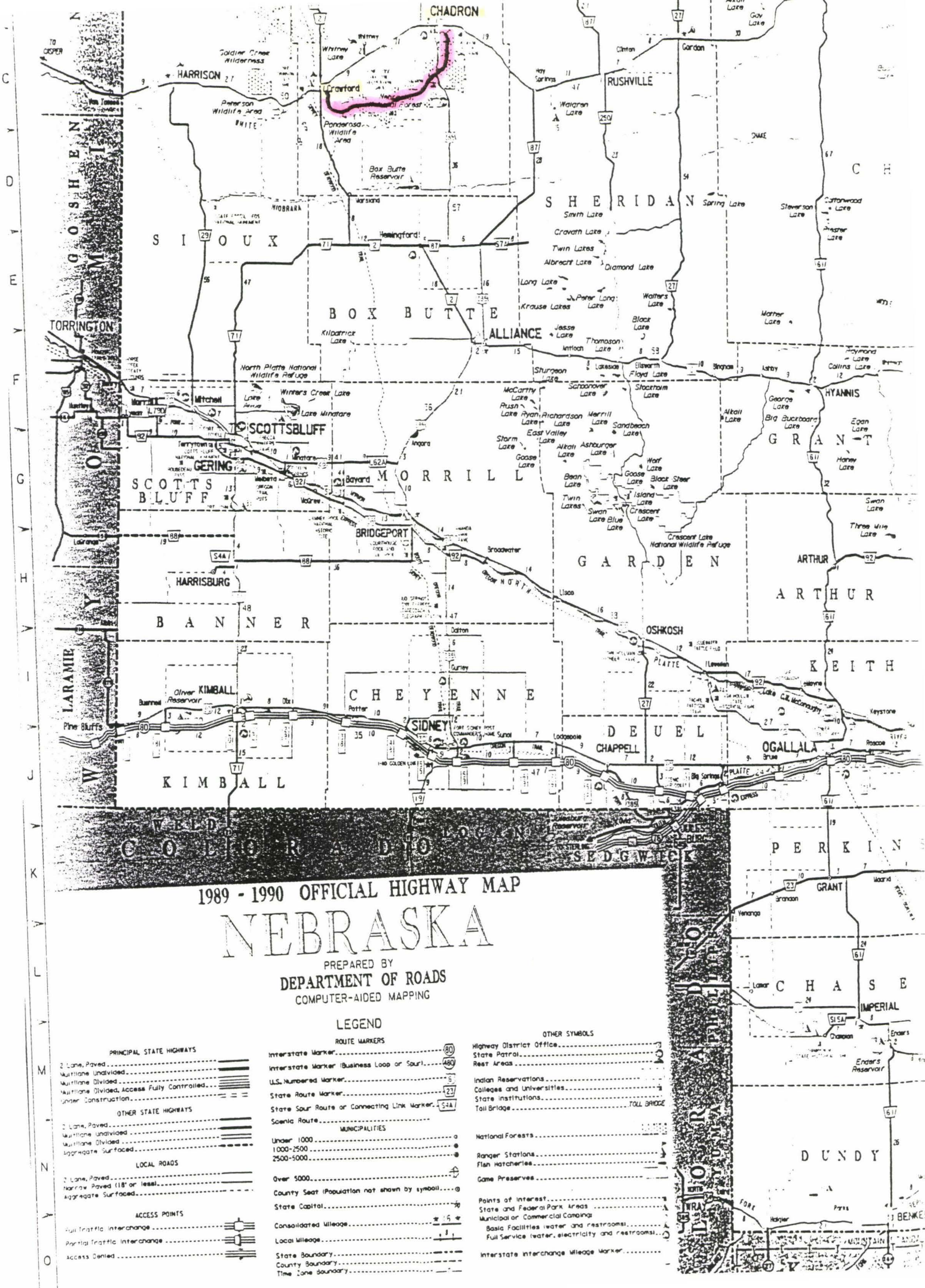
Appendix A

FIGURE I

VICINITY MAP
SHOWING
LANDS ADMINISTERED BY THE FOREST

Region 2. Forest Service,
United States Department of Agriculture


South Dakota
Nebraska
Lake Oahe
GRAND RIVER
SHOSHONE
BIGHORN
THUNDER BASIN
BLACK HILLS
Pierre
SOUTH DAKOTA
FORT PIERRE
Lake Sharpe
Rapid City
ROCKY
Lake Francis Case
Sioux Falls
BUFFALO GAP
WYOMING
Casper
MEDICINE BOW
OGLALA
SAMUEL R. MC KELVIE
NEBRASKA
Pathfinder Res
Seminoe Res
Platte
Scottsbluff
Elkhorn R
NEBRASKA
Loup R
MEDICINE BOW
NEBRASKA
Omaha
Cheyenne
MOUNTAIN
Lincoln
ROOSEVELT
PAWNEE
ROUTT
Fort Collins
Platte
Republican
Little Blue
ARAPAHO
WHITE RIVER
DENVER
Turtle Creek Lake
Kansas City
GRAND MESA
PIKE
REGION
Topeka
COLORADO
Smoky Hill
KANSAS
UNCOMPAHGRE
GUNNISON
SAN ISABEL
Arkansas
RIO GRANDE
SAN ISABEL
COMANCHE
Dodge City
Wichita
Neosho
Verdigris
CIMARRON



1989 - 1990 OFFICIAL HIGHWAY MAP

NEBRASKA

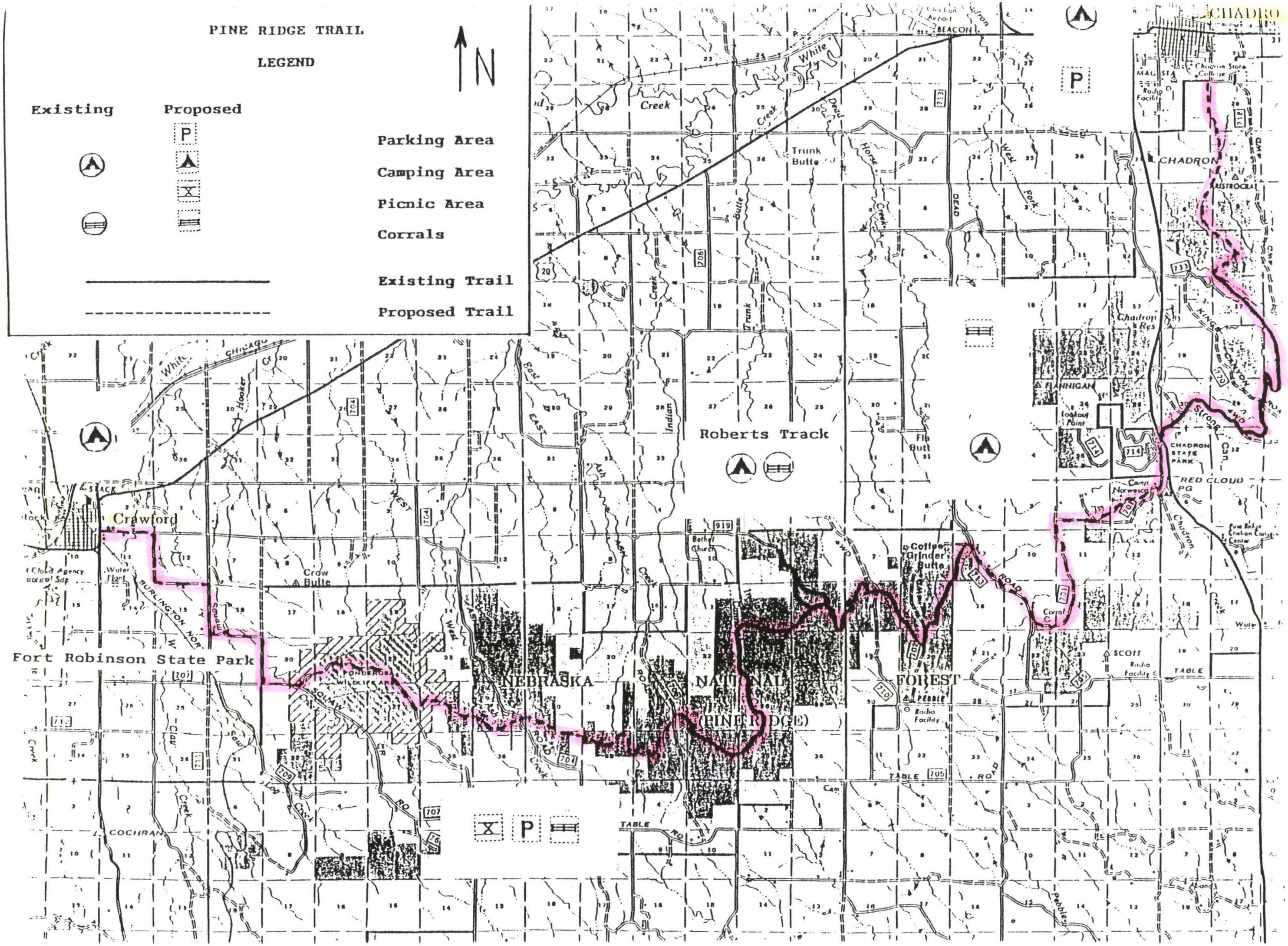
PREPARED BY

DEPARTMENT OF ROADS

COMPUTER-AIDED MAPPING

C
D
E
F
G
H
I
J
K
L
M
N
O
CHADRON
Crawford
HARRISON
RUSHVILLE
Gordon
Clinton
Hay Springs
Whitney
Whitney Lake
Soldier Creek Wilderness
Peterson Wildlife Area
Ponderosa Wildlife Area
Box Butte Reservoir
Walgren Lake
SIOUX
SHERIDAN
BOX BUTTE
Marsland
Hemingford
ALLIANCE
Antioch
Lakeside
Ellsworth
Bingham
Ashby
HYANNIS
TORRINGTON
Mitchell
Morrill
Lyman
SCOTTSBLUFF
Terrytown
GERING
Minatare
Melbeta
Bayard
McGrew
SCOTTS BLUFF
MORRILL
GRANT
BRIDGEPORT
Broadwater
Angora
North Platte National Wildlife Refuge
Winters Creek Lake
Lake Alice
Lake Minatare
Smith Lake
Cravath Lake
Twin Lakes
Albrecht Lake
Diamond Lake
Long Lake
Peter Long Lake
Krause Lakes
Walters Lake
Black Lake
Jesse Lake
Thomason Lake
Sturgeon Lake
Floyd Lake
Spring Lake
Steverson Lake
Cottonwood Lake
Priester Lake
Mother Lake
Raymond Lake
Collins Lake
McCarthy Lake
Rush Lake
Ryan Lake
Schoonover Lake
Stockholm Lake
Richardson Lake
Merrill Lake
Sandbeach Lake
East Valley Lake
Storm Lake
Alkali Lake
Ashburger Lake
Goose Lake
Bean Lake
Wolf Lake
Black Steer Lake
Island Lake
Twin Lakes
Swan Lake
Blue Lake
Crescent Lake
Crescent Lake National Wildlife Refuge
George Lake
Big Buckboard Lake
Egan Lake
Honey Lake
Swan Lake
Three Mile Lake
HARRISBURG
BANNER
GARDEN
ARTHUR
Lisco
OSHKOSH
Lewellen
KEITH
Lake C.W. McConaughy
Keystone
Dalton
Gurley
Potter
CHEYENNE
SIDNEY
Sunol
Lodgepole
DEUEL
CHAPPELL
Big Springs
OGALLALA
Brule
Roscoe
KIMBALL
Oliver Reservoir
Bushnell
Dix
Pine Bluffs
LARAMIE
GOSHEN
WYOMING
WELD
LOGAN
SEDGWICK
COLORADO
Julesburg Reservoir
PERKINS
GRANT
Grainton
Madrid
Venango
CHASE
Lamar
IMPERIAL
Champion
Enders
Enders Reservoir
DUNDY
Haigler
Parks
BENKELMAN
WRAY
YUMA
PHILLIPS
FORK
PLATTE
NORTH PLATTE
OREGON TRAIL
TO CASPER
LEGEND
PRINCIPAL STATE HIGHWAYS
2 Lane, Paved
Multilane Undivided
Multilane Divided
Multilane Divided, Access Fully Controlled
Under Construction
OTHER STATE HIGHWAYS
2 Lane, Paved
Multilane Undivided
Multilane Divided
Aggregate Surfaced
LOCAL ROADS
2 Lane, Paved
Narrow Paved (18' or less)
Aggregate Surfaced
ACCESS POINTS
Full Traffic Interchange
Partial Traffic Interchange
Access Denied
ROUTE MARKERS
Interstate Marker 80
Interstate Marker (Business Loop or Spur) 480
U.S. Numbered Marker 6
State Route Marker 23
State Spur Route or Connecting Link Marker S4A
Scenic Route
MUNICIPALITIES
Under 1000
1000-2500
2500-5000
Over 5000
County Seat (Population not shown by symbol)
State Capital
Consolidated Mileage 15
Local Mileage 3
State Boundary
County Boundary
Time Zone Boundary
OTHER SYMBOLS
Highway District Office
State Patrol
Rest Areas
Indian Reservations
Colleges and Universities
State Institutions
Toll Bridge TOLL BRIDGE
National Forests
Ranger Stations
Fish Hatcheries
Game Preserves
Points of Interest
State and Federal Park Areas
Municipal or Commercial Camping
Basic Facilities (water and restrooms)
Full Service (water, electricity and restrooms)
Interstate Interchange Mileage Marker

Appendix B


PINE RIDGE TRAIL
LEGEND
N
Existing
Proposed
P
Parking Area
Camping Area
Picnic Area
Corrals
Existing Trail
Proposed Trail
CHADRON
Chadron State College
MAG STA
Radio Facility
BEACON
White
Creek
Trunk Butte
Dead Horse Creek
West Fork
DEAD
Butte
Trunk
Indian
Creek
Hooker Cr
CHICAGO
East
EAST
Ash
WEST
Roberts Track
Chadron Res
FLANNIGAN
Lookout Point
KINGS CANYON
Strong Can
CHADRON STATE PARK
RED CLOUD PG
Camp Norwesca
Coffee Grinder Butte
ROAD
Corral
Bethel Church
Crawford
Crow Butte
Red Cloud Agency
Water Plant
BURLINGTON NOR
Squaw
Fort Robinson State Park
NEBRASKA NATIONAL FOREST
(PINE RIDGE)
SOLDIER CREEK
PEBBLE
Radio Facility
SCOTT
Radio Facility
TABLE
TABLE ROAD
COCHRAN
Clay Creek
Log Creek
Pebble
Cem
20
704
706
713
714
719
720
721
733
735
707
708
709
710
711
919
705

Appendix C

Rural (R) - An area characterized by a natural environment which has been substantially modified by development of structures, vegetative manipulation and/or pastorial agricultural development. Resource modification and utilization practices may be used to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities are often provided for special activities. Moderate densities are provided for away from developed sites. Facilities for intensified motorized use and parking are available.

Roaded natural (RN) - Area is characterized by predominantly natural-appearing environments with moderate evidence of the sights and sounds of man. Such evidences usually harmonize with the natural environment. Interaction between users may be moderate to high, with evidence of other users prevalent. Resource modification and utilization practices are evident, but harmonize with the natural environment. Conventional motorized use is provided for in construction standards and design of facilities.

Semi-Primitive Motorized (SPM) - An area characterized by a predominantly natural or natural-appearing environment of moderate-to-large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but are subtle. Motorized recreation use is permitted utilizing local primitive or collector roads with predominantly natural surfaces and trails suitable for motorbike use.

Semi-Primitive Non-Motorized (SPNM) - An area characterized by a predominantly natural or natural-appearing environment of moderate-to-large size. Interaction between users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present but are subtle. Motorized recreation use is not permitted, but local roads used for other resource management activities may be present on a limited basis. Use of such roads are restricted to minimize impact on recreation experience opportunities.

Appendix D

MANAGEMENT PRESCRIPTIONS 4A AND 4E

(Emphasis is on habitat of indicator species on the National Forest.)

Management Prescription Summary

General Direction and Goals:

Management emphasis is on the habitat needs of sharp-tailed grouse, turkey, and deer. The goal is to optimize habitat capability and, thus, numbers of species jointly agreed to with State Fish and Wildlife agencies. Rangeland is managed to provide vegetation species composition and diversity favorable to both wildlife and livestock. Range stocking rates may be reduced during the initial phase of the Plan (10 years) in order to recover at least 60 percent of the range to good or better condition. Once this range condition has been obtained, stocking rates may be increased provided wildlife habitat is not reduced or range condition lowered.

Tree stands are managed for specific size, interspersion, crown closure, age, structure, and edge contrast. A full range of tree harvest methods and rangeland vegetation treatment opportunities are available. Trees and shrubs are planted to supplement natural regeneration where needed. Woody cover in late seral stage is emphasized and is maintained adjacent to water.

Recreation and other human activities are regulated to favor needs of the designated wildlife species. Roaded-natural recreation opportunities are provided along Forest arterial and collector roads. Local roads and trails are either open or closed to public motorized travel. Semi-primitive mototized recreation opportunities are provided on those local roads and trails that remain open, semi-primitive non-motorized opportunities are provided on those that are closed.

THE DIFFERENCE BETWEEN 4A AND 4E IS THAT IN 4A, ORV USE WILL NOT BE PERMITTED OFF FOREST DEVELOPEMENT ROADS, WHEREAS IN 4E, ORV USE WILL BE PERMITTED UNLESS OTHERWISE DESIGNATED.

B. MANAGEMENT REQUIREMENTS

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
Visual Resource Management (A04)	01 Design and implement management activities to blend with the natural landscape. (0332) (04E)	a. Do not exceed an Adopted Visual Quality Objective (VQO) of modification. (6267) (04E)
Dispersed Recreation Management (A14 and 15)	01 Manage human recreational activities so they do not conflict with habitat needs of selected indicator species. (0343) (04E)	
	02 Semi-primitive nonmotorized, semi-primitive motorized, roaded natural and rural recreation opportunities can be provided. (0445) (04E)	a. See FSM 2331, FSM 7732, FSH 7709.12 (Trails Handbook), FSH 7109.11a and 11b (Sign Handbook). (6226) (04E) b. Maximum Use and Capacity Levels are:

Recreation use and capacity range during the snow-free period (PAOT/acre):

Trail use and capacity range (PAOT/mile of trail):

Capacity Range

Use Level	Very Low	Low	Moderate	High
ROS Class - Semi-Primitive Nonmotorized				
On Trails PAOT/mile	2.0	3.0	9.0	11.0
Area-wide PAOT/acre	.004	.008	.05	.08
ROS Class - Semi-Primitive Motorized				

MANAGEMENT ACTIVITIES | GENERAL DIRECTION | STANDARDS & GUIDELINES

CONTINUATION OF:
Dispersed
Recreation
Management
(A14 and 15)

On Trails PAOT/mile	2.0	3.0	9.0	11.0
Area-wide PAOT/acre	.004	.008	.05	.08
ROS Class - Roaded Natural				
On Trails PAOT/mile	-	-	-	-
Area-wide PAOT/acre	.04	.08	1.2	2.5
ROS Class - Rural				
On Trails PAOT/mile	-	-	-	-
Area-wide PAOT/acre	.5	.8	5.0	7.5

Reduce the above use level coefficients as necessary to reflect usable acres, patterns of use, and general attractiveness of the specific management area type as described in the ROS Users Guide, Chapter 25.

Reduce the above use levels where unacceptable changes to the biophysical resources will occur.
(6402) (04E)

03 Provide facilities such as foot and horse trails, single lane local intermittent roads with primitive surface used as trails, development level 1 and 2 campgrounds, and necessary signing.
(0394) (04E)

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: Dispersed Recreation Management (A14 and 15)	04 Maintain existing motorized routes or construct new routes needed as part of the transportation system. Provide loop routes of one-half to one day's travel time with at least one-half the total route located within the semi-primitive motorized ROS class and utilizing primitive local roads and/or trails suitable for motorized trail bike travel. (0164) (04E)	a. Do not exceed an average motorized trail density of 2 miles per square mile in nonforested areas of fourth-order watersheds. (6093) (04E)
	05 Permit undesignated sites in Frissell condition class 1 through 3 where unrestricted camping is permitted. (0174) (04E)	a. Campsite condition class based upon Frissel, S. S.; Journal of Forestry, May, 1978. (6278) (04E)
	06 Manage site use and occupancy to maintain sites within Frissell condition class 3 except for designated sites which may be class 4. Close and restore class 5 sites. (0175) (04E)	
Wildlife and Fish Resource Management (C01)	01 Manage for habitat needs of deer, turkey, and sharp-tailed grouse. (0025NE) (04E)	a. Use natural water sources or provide man-made structures at a density of one facility for 640 acres over habitat with high potential for turkey. (6023NE) (04E)
	02 Manage hayable sites within riparian and woody draw areas to enhance value. (0038NE) (04E)	a. When no other management alternative exists, fence key areas to provide control over grazing. Where possible, haying permits will be issued to utilize livestock forage. (6025NE) (04E)
Wildlife Habitat Improvement and Maintenance (C02, 04, 05 and 06)	01 Implement trial plantings of aspen in the Pine Ridge Area. (0026NE) (04E)	
	02 Conduct habitat improvement projects jointly or cooperatively funded with the States. (0339) (04E)	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: Wildlife Habitat Improvement and Maintenance (C02, 04, 05 and 06)	03 Plant trees on the Bessey Area and on the Samuel R. McKelvie National Forest on acres not previously covered by trees to increase wildlife habitat carrying capacity and ecological diversity. (0029NE) (04E)	a. Plant trees in plots of 1-20 acres on suitable sites, previously not forested, not to exceed 50 acres/year. (6024NE) (04E)
Range Resource Management (D02)	01 Practice intensive range management where it is consistent with maintaining or enhancing wildlife habitat. (0040NE) (04E)	a. In cooperation with State agencies and permittees, develop measurable residual standards that are described in Allotment Management Plans. (6050NE) (04E)
	02 Alter grazing systems, season of use, and stocking rates to enhance wildlife habitat. (0042NE) (04E)	
	03 Maintain at least 60 percent of rangeland in good or better condition, the other 40 percent should be in at least fair condition. (0043NE) (04E)	a. Base range condition on the standards in Range Analysis Handbook (FSH 2209.21) or SCS methods. (6019NE) (04E)
Range Improvement and Maintenance (D03, 04, 05 and 06)	01 Provide range improvements and conservation practices that are multipurpose in nature. (0044NE) (04E)	a. Apply prescribed fire or mechanically treat natural regeneration when advanced reproduction encroachment reaches approximately 300 seedlings per acre on high quality rangeland on the Pine Ridge Area. (6208NE) (04E)
		b. Manage 70-90 percent of all grazing allotments under a non-continuous system or provide for deferment of grazing during the growing season. (6049NE) (04E)
		c. Livestock water developments not to exceed an average density of one per 640 acres. (6051NE) (04E)
		d. Fill in behind nonuse or grant

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: Range Improvement and Maintenance (D03, 04, 05 and 06)		temporary extensions only when suitable habitat conditions can be assured beforehand. (6044NE) (04E)
Silvicultural Prescriptions (E03, 06 & 07)	01 Re-establish tree cover in the event of catastrophic loss consistent with management direction. (0216NE) (04E)	a. Plant within three years of the loss if natural stocking is not adequate and if an assessment of the site ensures a reasonable probability of success. Replace with same species. (6205NE) (04E)
	02 Retain ponderosa pine cover on 8,000 to 10,500 acres of suitable forest land on the Pine Ridge Area, 8,000 to 10,000 acres on the Bessey Area, and 1,500 to 2,500 acres on the Samuel R. McKelvie National Forest. Practice even-aged management except where uneven-aged systems better meet visual quality objectives. (0218NE) (04E)	
	03 Thin ponderosa pine stands to provide protection from fires and insect and disease infestations, to provide opportunities for multi-product sales, or to improve quality and growth of growing stock. (0219NE) (04E)	
	04 Manage the 20,000 to 25,000 acres of ponderosa pine on the Pine Ridge Area classified as not suited for timber production to retain the cover type. Practice even-aged management. (0220NE) (04E)	
	05 Retain jack pine cover on 2,000 to 3,000 acres of unregulated forest land on the Bessey Area. Provide for a diversity of age classes and stand densities. Practice even-aged management except where uneven-aged systems may be preferable to provide visual diversity. (0221NE) (04E)	a. Afforestation may be used to redistribute the jack pine cover on the Bessey Area into smaller, noncontiguous blocks to reduce potential for insect and disease outbreaks and wildfire. Plantations will not exceed 40 acres. (6046NE) (04E)

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: Silvicultural Prescriptions (E03, 06 & 07)	06 Thin jack pine stands to provide protection from wildfires and insect and disease infestations, or to provide opportunities for post sales or fuelwood. (0222NE) (04E)	
	07 Retain Eastern redcedar cover on 2,000 to 3,000 acres of unregulated forest land on the Bessey Area and 100 to 300 acres on the Samuel R. McKelvie National Forest. Protect existing Eastern redcedar stands until they reach marketable size. Practice even-aged management except where uneven-aged systems may be preferable to provide visual diversity. (0223NE) (04E)	
Fuel Treatment (P11 thru 14)	01 Maintain fuel conditions which permit fire suppression and prescribed fire to maintain habitat needed for selected species or species population levels. (0344) (04E)	
	02 Provide firewood material using both commercial and noncommercial methods when surplus to wildlife needs. (0244NE) (04E)	

MANAGEMENT PRESCRIPTION 6B

(Emphasis is on livestock grazing on National Forests.)

Management Prescription Summary

General Direction and Goals:

Management emphasis is on livestock grazing. Range condition will be managed to obtain 60 percent of the range in good or better condition. This may require some reduction in stocking rates in the first 10 years of the Plan. After range condition has reached this level, stocking rates may be increased provided range condition can be held at 60 percent good or better.

Intensive grazing management systems are favored over extensive systems. Range condition is maintained through use of forage improvement practices, livestock management, and regulation of other resource activities. Periodic heavy forage utilization occurs. Investment in structural and nonstructural range improvements to increase forage utilization is moderate to high. Structural improvements benefit, or at least do not adversely affect, wildlife. Conflicts between livestock and wildlife are resolved in favor of livestock. Nonstructural restoration and forage improvement practices available are seeding, planting, burning, fertilizing, pitting, furrowing, spraying, crushing, and plowing. Cutting of encroaching trees may also occur.

A full range of tree harvest methods are available. Investments in other compatible resource uses may occur but will be secondary to grazing requirements. Management activities may dominate in foreground and middleground, but harmonize and blend with the natural setting.

Dispersed recreational opportunities vary between semi-primitive nonmotorized and roaded natural. Management activities are evident but harmonize and blend with the natural setting. ORV use will be permitted unless otherwise designated as closed.

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES

CONTINUATION OF:
Dispersed
Recreation
Management
(A14 and 15)

Nonmotorized				
On Trails PAOT/mile	2.0	3.0	9.0	11.0
Area-wide PAOT/acre	.004	.008	.05	.08
ROS Class - Semi-Primitive Motorized				
On Trails PAOT/mile	2.0	3.0	9.0	11.0
Area-wide PAOT/acre	.004	.008	.05	.08
ROS Class - Roaded Natural				
On Trails PAOT/mile	-	-	-	-
Area-wide PAOT/acre	.04	.08	1.2	2.5
ROS Class - Rural				
On Trails PAOT/mile	-	-	-	-
Area-wide PAOT/acre	.5	.8	5.0	7.5

Reduce the above use level coefficients as necessary to reflect usable acres, patterns of use, and general attractiveness of the specific management area type as described in the ROS Users Guide, Chapter 25.

Reduce the above use levels where unacceptable changes to the biophysical resources will occur.
(6402) (06B)

B. MANAGEMENT REQUIREMENTS

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
Visual Resource Management (A04)	01 Design and implement management activities to blend with the natural landscape. (0332) (06B)	a. Do not exceed an Adopted Visual Quality Objective (VQO) of modification. (6267) (06B) b. When projects require clearing of vegetation and (or) soil disturbance, use irregular clearing edges and shapes to blend with the natural landscapes. (6185) (06B)
Dispersed Recreation Management (A14 and 15)	01 Semi-primitive nonmotorized, semi-primitive motorized, roaded natural and rural recreation opportunities can be provided. (0445) (06B)	a. Specify off-road vehicle restrictions based on ORV use management (FSM 2355, R2 Supp. 88). (6083) (06B)
	02 Facilities provided include development level 1 and 2 campgrounds, trails suitable for motorized trailbike use, local roads with primitive surface and parking lots at trail heads. Provide signing compatible with intended use. (0153) (06B)	
	03 Manage use to allow low to moderate contact with other groups and individuals. (0238) (06B)	a. Maximum Use and Capacity Levels are: Recreation use and capacity range during the snow-free period (PAOT/acre): Trail use and capacity range (PAOT/mile of trail):

Capacity Range

Use Level	Very Low	Low	Moderate	High

ROS Class - Semi-Primitive

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: Dispersed Recreation Management (A14 and 15)	08 Manage site use and occupancy to maintain sites within Frissell condition class 3 except for designated sites which may be class 4. Close and restore class 5 sites. (0175) (06B)	
Wildlife and Fish Resource Management (C01)	01 Manage for habitat needs of deer, turkey, and sharp-tailed grouse. (0025NE) (06B)	
	02 Manage hayable sites within riparian and woody draw areas to enhance value. (0038NE) (06B)	a. When no other management alternative exists, fence key areas to provide control over grazing. Where possible, haying permits will be issued to utilize livestock forage. (6025NE) (06B)
	03 Maintain turkey habitat. (0027NE) (06B)	
Wildlife Habitat Improvement and Maintenance (C02, 04, 05 and 06)	01 Provide adequate forage to sustain big-game population levels agreed to in the Statewide Comprehensive Wildlife Management Plan on NFS lands. (0330) (06B)	
	02 Manage wildlife and fish resources as outlined in the appropriate State Comprehensive Wildlife Management Plan. (0207NE) (06B)	
Range Resource Management (D02)	01 Manage to achieve and maintain a high standard of range condition for increased sustained livestock use. Practice intensive range management and use all available range and livestock management technology. (0046NE) (06B)	
	02 Implement management systems and practices to achieve and maintain at least 60 percent of livestock forage on rangelands in good range condition. Maintain remainder in fair condition with an upward trend. (0053NE) (06B)	a. Base range condition on the standards in Range Analysis Handbook (FSH 2209.21) or SCS methods. (6019NE) (06B)

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: **Dispersed Recreation Management (A14 and 15)**		
	04 Manage human recreational activities so they do not conflict with habitat needs of selected indicator species. (0343) (06B)	
	05 Provide roaded natural recreation opportunities within 1/2 mile of Forest arterial, collector and local roads with better than primitive surfaces which are open to public travel. Provide semi-primitive motorized recreation opportunities with a low to moderate incidence of contact with other groups and individuals within 1/2 mile of designated local roads with primitive surfaces and trails open to motorized recreation use. Where local roads are closed to public motorized recreation travel, provide for dispersed non-motorized recreation opportunities. Manage recreation use to provide for the incidence of contact with other groups and individuals appropriate for the established ROS class. Provide semi-primitive non-motorized recreation opportunities in all areas more than 1/2 mile away from roads and trails open to motorized recreation use. (0650) (06B)	a. See FSM 2331, FSM 7732, FSH 7709.12 (Trails Handbook), FSH 7109.11a and 11b (Sign Handbook). (6226) (06B)
	06 Provide facilities such as foot and horse trails, single lane local intermittent roads with primitive surface used as trails, development level 1 and 2 campgrounds, and necessary signing. (0394) (06B)	a. Close areas to off-road vehicle use when ground cover, reflected by the C factor used in USLE, would be reduced to the point that the natural erosion rate is increased 10 percent per acre per year. (6001NE) (06B)
	07 Permit undesignated sites in Frissell condition class 1 through 3 where unrestricted camping is permitted. (0174) (06B)	a. Campsite condition class based upon Frissel, S. S.; Journal of Forestry, May, 1978. (6278) (06B)

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: Range Resource Management (D02)	03 Allow cropping, seeding, fertilizing, and mechanical treatment. (0050NE) (06B)	
	04 Alter grazing schemes, season of use, and livestock stocking rates to optimize use of forage for red meat production. (0048NE) (06B)	a. Fill in up to 100 percent of the nonuse requested for personal convenience. (6047NE) (06B)
Range Improvement and Maintenance (D03, 04, 05 and 06)	01 Provide range improvements and conservation practices that are multipurpose in nature. (0044NE) (06B)	a. Manage at least 51 percent of all grazing allotments under a noncontinuous system with even livestock distribution. (6048NE) (06B)
Silvicultural Prescriptions (E03, 06 & 07)	01 Maintain and manage forested inclusions to provide a high level of forage production, wildlife habitat, and diversity. (0333) (06B)	
	02 Provide firewood material using both commercial and noncommercial methods when surplus to wildlife needs. (0244NE) (06B)	
	03 Re-establish tree cover in the event of catastrophic loss consistent with management direction. (0216NE) (06B)	a. Plant within three years of the loss if natural stocking is not adequate and if an assessment of the site ensures a reasonable probability of success. Replace with same species. (6205NE) (06B)
	04 Retain ponderosa pine cover on 8,000 to 10,500 acres of suitable forest land on the Pine Ridge Area, 8,000 to 10,000 acres on the Bessey Area, and 1,500 to 2,500 acres on the Samuel R. McKelvie National Forest. Practice even-aged management except where uneven-aged systems better meet visual quality objectives. (0218NE) (06B)	
	05 Thin ponderosa pine stands to provide protection from fires and insect and disease infestations, to provide opportunities for multi-product sales, or to improve quality and growth of growing stock. (0219NE) (06B)	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
CONTINUATION OF: Silvicultural Prescriptions (E03, 06 & 07)	06 Manage the 20,000 to 25,000 acres of ponderosa pine on the Pine Ridge Area classified as not suited for timber production to retain the cover type. Practice even-aged management. (0220NE) (06B)	

Appendix E

nange p.iii, par.2, to show the creation of the Soldier Creek Wilderness and the Pine Ridge National Recreation Area. The paragraph should read as follows:

he Soldier Creek Wilderness and the Pine Ridge National Recreation Area will be managed in accordance with the Act in which they were created. The wilderness character of the three remaining roadless areas will be protected until legislative action is taken or an evaluation is completed.

Add, on p.v, after the paragraphs on Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974, as amended by National Forest Management Act (NFMA) of 1976, the following:

Nebraska Wilderness Act of 1985. Provided for the establishment and administration of the Soldier Creek Wilderness and the Pine Ridge National Recreation Area on the Pine Ridge Ranger District of the Nebraska National Forest. The Soldier Creek Wilderness will be administered for the use and enjoyment of all people in such a manner as will leave the system unimpaired for future use and enjoyment as wilderness. The Pine Ridge National Recreation Area will be administered for the use and enjoyment of all people in such a manner as to continue the existing primitive and semi-primitive recreational use in a natural environment, and to protect and conserve the values contributing to the public benefit.

Change p.viii, par.8, to show the creation of the Soldier Creek Wilderness and the Pine Ridge National Recreation Area. The paragraph should read as follows:

Chief of the Forest Service authorized the Nebraska National Forest to defer the roadless area evaluation prior to publishing a final EIS and Forest Plan because these documents were nearly completed and there were no activities planned for any of the five roadless areas on the Forest that would preclude future consideration for wilderness. Now that two of the five areas have been designated, legislatively, as Wilderness and National Recreation Area, the remaining three roadless areas (in South Dakota) will be retained in the roadless area inventory until legislative action or evaluation is completed.

Add the following, on p.xii, before C01, Wildlife and Fish Resource Management:

B02 Wilderness Area Management . . . III-17

Add the following, on p.xiii, after 6J and before 9A:

8C Semi-primitive Wilderness Management . . . III-116

Add the following, on p.xiii, after 10F:

10H Pine Ridge National Recreation Area Management . . . III-136

[illegible]pter III - Management Direction

Add, on p.III-3 after the Recreation section, the following:

Special Interest Area (National Recreation Area)

-- Manage the Pine Ridge National Recreation Area for the continuation of existing primitive and semi-primitive recreational use in a natural environment.

Wilderness

-- Provide for wilderness experience opportunities by protecting resources, quality, and wilderness character of the Soldier Creek Wilderness.

Replace the heading "Wilderness" on p.III-3, with "Roadless Areas".

Add, on p.III-7, Table III-1, Wilderness and National Recreation Area Values. The inclusions to the table should be as follows:

Activity	Unit Of Measure	Present Year 1979	1981 1985	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
Special Interest Area (This is the National Recreation Area)	Million Visitor Days			.0007	.0011	.0011	.0012	.0012
Wilderness Use	Million Visitor Days			.0033	.0053	.0056	.0057	.0059
Wilderness Management	Thousand Acres			8.1	8.1	8.1	8.1	8.1

[illegible], after p.III-135 and before the section on Monitoring and Evaluation, the following:

Management Prescription 10H:
(Provides for Pine Ridge National Recreation Area Management)

General Direction and Goals:

Emphasis is on the management of the Pine Ridge National Recreation Area for the protection of existing primitive and semi-primitive recreational use in a natural environment. Encounters, at moderate to high levels, with other users or evidence of past use is not an essential part of the social setting. Human travel is principally on system trails. Opportunities will be provided in a primitive/semi-primitive environment.

Investments in compatible resource uses, such as livestock grazing, will continue; but roads are closed to the general publics use. Tree cutting will not be done to support the Forest's annual target. Trees may be cut and left, or removed, for fuel reduction near private lands, wildlife habitat improvements, and to heighten visually appealing landscapes. If cutting is done it will be done with the proper silvicultural method that ensures the management objective will be met. No roads will be built in the National Recreation Area.

B. Management Requirements

Management [illegible]tivities	General Direction	Standards & Guidelines
Visual Resource Management (A04)	01 Design and implement management activities to provide a visually appealing landscape. Enhance or provide more viewing opportunities and increase vegetation diversity in selected areas. (0150) (10H)	a. Do not exceed an Adopted Visual Quality Objective (VQO) of Partial Retention. (6223) (10H) b. Manage visual resources using the above standards in accordance with FSM 2380 and FSH 2309.16 through FSH 2309.25. (6225) (10H)
Dispersed Recreation Management (A14 & 15)	01 Provide semi-primitive recreation opportunities requiring a predominately unmodified natural settings, with a moderate to high degree of challenge and risk while traveling cross-country or on trails. (0237) (10H)	

02 Emphasize semi-primitive non-motorized recreation opportunities. The area will be open to authorized vehicles to accomplish resource management activities (i.e., permittees doing allotment management, Forest Service vehicles for project work, vehicles to remove unwanted fuels, etc.). The area is open to nonmotorized mechanized vehicles (i.e., mountain bicycles, push game carts, horse-drawn wagons, etc.). (0263NE) (10H)

03 Manage summer use to allow moderate to high contact with other groups and individuals.
(0752) (10H)

a. Area wide Capacity (PACT/Acre)

Open lands	
Grass	.008
Forest and Shrub lands	
Ponderosa Pine, Riparian areas	.05

(6126NE) (10H)

b. Maximum use and capacity levels are:
-Trail and camp encounters during peak use days are less than 20 other parties per day.
-Trail capacity is displayed below:

Use Level	Open Lands	Forest & Shrub Lands
On Trails (PACT/Mile)	2-3	9-11

(6346) (10H)

04 Permit undesignated sites in Frissell condition class 1 through 3 where undesignated camping is permitted.
(0174) (10H)

05 Manage site use and occupancy to maintain sites within Frissell condition class 3 except for designated sites which may be class 4. Close and restore class 5 sites.
(0175) (10H)

	06 Reduce visitor use when the level of use exceeds capacity for more than 20 percent of the summer use season. (0489) (10H)	
	07 Impose party-size limits when necessary to prevent unacceptable levels of change to the biological, physical and social resources. (0259NE) (10H)	
	08 Prohibit competitive contest events, group demonstrations, ceremonies, and other similar events. (0209) (10H)	
Recreation Management (Private & Other Public Sector) (A16)	01 Permit only day use for commercial outfitter-guide operations that use horses. Keep outfitter-guide activities harmonious with activities of non-guided visitors. Include outfitter-guide operations in calculations of level-of-use capacities. (0264NE) (10H)	
Wildlife Habitat Improvement and Maintenance (C02,04,05 & 06)	01 Maintain wildlife habitat effectiveness. Permanent openings may be employed. Reduce disturbance to wildlife so that no significant long-term negative wildlife effects result. (0155) (10H)	a. The use of mechanized equipment and prescribed fire may be used to accomplish the management objectives, but no road building will be allowed. (6247NE) (10H)
Range Resource Management (D02)	01 Manage livestock and herbivorous wildlife forage in accordance with FSM 2320.3 (36CFR293.7). (0182) (10H)	a. Follow established utilization standards for areas, within grazing allotments. (6130) (10H)
Soil Resource Management (KA1)	01 Restore soil disturbance caused by human use (past mining, grazing, trail construction and use, camping, etc.) to soil loss tolerance levels commensurate with the natural ecological processes for the treatment area. (0184) (10H)	a. Follow procedures specified in Agricultural Handbook for utilizing the Universal Soil Loss Equation. (Cautions contained in WO 2550 letter dated 5/28/82 should be noted.) The guidance for K and T factors are in the National Soils Handbook 407.1(a)(3)(xvii). (6159) (10H)

Trail System Management (L23)	01 Maintain existing trail routes or construct new routes as part of the transportation system. Develop loop routes and coordinate them to complement nonmotorized opportunities in adjacent ROS class areas. (0844) (10H)	
Wildfire Suppression (P09)	01 Take suppression action on all wildfires with mechanical equipment were applicable. (0265NE) (10H)	
Fuel Treatment (P11 thru 14)	01 Maintain fuel conditions which permit fire suppression forces to meet fire protection objectives for the area. (0113) (10H)	a. Accomplish treatment along Forest boundary, by such methods as tree cutting, prescribed burning, etc. (6248NE) (10H)
Vegetation Treatment	01 Treatment of vegetation for management objectives in visual quality, wildlife, or insect and disease protection may be done. (0266NE) (10H)	a. Treatment may be through tree cutting, prescribed burning, or other means to accomplish objectives. (6250NE) (10H)

Chapter IV - Monitoring and Evaluation

Add, on p.IV-4, in the section on Wilderness, the following:

Monitoring Requirements

Activity, Practice, Effect or Resource to be Measured	Data Source Monitoring Tech.	Frequency of Measurements	Variability Which Would Initiate Further Eval.
Condition of campsite areas within Wilderness	Frissell Site inspection	10% Annually	When 20% of Frissell Site inspections are found to be degraded one class from the previous period or when site conditions exceed class 3
Recreation wilderness use--amount and distribution	RIM use source documents, trail registration, & counters	Annually	Prescription management goals

Appendix F

NEBRASKA NATIONAL FOREST
LAND AND RESOURCE MANAGEMENT PLAN

AMENDMENT NUMBER FOUR

PREFACE
No change

CHAPTER I - INTRODUCTION
No change

CHAPTER II - MANAGEMENT SITUATION
No change

CHAPTER III - MANAGEMENT DIRECTION

Recreation Goals Statements listed on page III-3 of the Forest Plan are amended to include the following which identifies which facets of the Forest's recreation program will receive added emphasis.

RECREATION STRATEGIES FOR THE NEBRASKA NATIONAL FOREST

The people of Nebraska and South Dakota are proud of their National Forests and Grasslands and have a desire to better use them if the opportunities can be developed to meet current customer needs. We believe they will respond with increasing awareness, interest and use. This is our goal.

The Land and Resource Management Plan for the Nebraska National Forest (NNF) identified numerous objectives and guidelines on how recreation activities will be managed, but did not expand upon those recreation attributes unique to the Nebraska National Forest. This document expands upon those objectives and guidelines with the intent that the recreation program will become clear to both internal and external readers.

Although the NNF is comprised of three National Grasslands and two National Forests, recreation opportunities are quite similar. The Bessey and Pine Ridge portions of the Nebraska National Forest may be the exceptions. These units, due to the topography and/or tree cover, do provide additional opportunities for expanded developed activities. For the purpose of this document, the NNF will be divided into two general areas and their respective recreation strategies expanded upon. The recreation strategies for the Soldier Creek Wilderness and Pine Ridge National Recreation Area will be covered in separate, more specific documents, and will be appended to this broad-based strategy statement for the entire NNF.

BUFFALO GAP AND FT. PIERRE NATIONAL GRASSLANDS IN SOUTH DAKOTA AND OGLALA NATIONAL GRASSLAND IN NEBRASKA.

This area is predominantly open prairie with intermingled badlands which contain a multitude of wildlife species. This panoramic scenery and its wildlife, along with other natural resources such as fossils and semi-precious gemstones, provide the foundation behind the recreation strategy. There is a highly intermingled private and public ownership pattern in this area. This generally tends to limit recreation opportunities as well as management options for other resources. With this in mind, the Forest has implemented an expanded lands exchange program in order to provide "Islands of Public Ownership". A consolidated ownership pattern will provide increased access by the public, as well as reduce conflicts with private landowners as they block up their ranching and farming operations.

Consolidating Land Ownership Patterns in Order to Improve Recreation Opportunity - Although the State Section Line Law in South Dakota specifies that all section lines are available for public access unless specifically closed by local commissioners, topography, soils, etc., often restrict such access. Existing routes, roads and trails outside section line rights-of-way often cross private lands without legal public access. Recreational use of adjoining Federal lands is thus limited. Consolidation of ownerships will eliminate the need for numerous rights-of-way. Easements will be obtained for public use of additional roads as opportunities present themselves until such time as the expanded land exchange program nears completion. Emphasis will then be placed on obtaining the remaining public right-of-way easements.

Signing - Accidental, unintended trespasses occur because the public is often unable to distinguish between private and National Forest System lands. The NNF has put emphasis on signing public lands. Most commonly this is accomplished by installing signs identifying pasture names or numbers near entrance points to pastures. These signs have, or will have, Forest Service ownership identification symbols.

Roads - Driving for pleasure occurs on the NNF as well as other National Forest System lands. Our objective is to have a road system which meets local needs, the needs of management, and also provides opportunities for the general public to enjoy the scenery, recreation, wildlife and other amenities found on these intermingled lands. The Forest Service's Scenic Byway program may not identify specific roads on the NNF because of national criteria, but there are several routes deserving to be identified for this purpose, albeit on a more local level. A variety of scenic driving routes will be identified and coordinated with the State of Nebraska, Department of Roads and Department of Economic Development.

Roads maintained by other than County or State agencies are generally in a primitive condition, rarely gravel surfaced with all-weather materials. Over the years, where these roads crossed drainages, severe erosion has occurred and many are no longer passable. Consequently, such roads have been taken off the road system. The NNF has recognized the need for improved access to numerous areas but due to the cost of such projects compared to the benefits generated, the NNF does not compete very strongly for limited amounts of available road funds. When opportunities present themselves, roads will be upgraded with emphasis on safety and then restored to the road system.

Recreation Developments - We desire to emphasize construction of developments near unique areas such as rock beds, Ducks Unlimited projects, fishing ponds, etc., that will attract additional users. Opportunities for additional developed facilities are limited due to funding and a shortage of new sites to meet customer needs. Emphasis will be placed on maintaining and improving the French Creek and Toadstool Park Campgrounds.

↑
To become a campground

Off-Highway Vehicle Use - Use of off-highway vehicles (OHV's) within this area has not had significant impact on other users. Most of the area is available to OHV's but use has been concentrated near Railroad Buttes south of Farmingdale, SD, and to a one-day race on the Wall Ranger District known as the Badlands Baja. A Forest Interdisciplinary Team has visited the Buttes area and has recommended (1) that monitoring of use continue, and (2) that contacts be made with users in order to emphasize continued protection of the resources as well as a respect for other users. Opportunities are available for an OHV designated area such as the Railroad Buttes.

Prairie Dog Colonies - Prairie dog colonies provide excellent opportunities for viewing a variety of wildlife as well as sport shooting. With cooperative efforts, access could be designed for use by the handicapped. Emphasis is placed on stabilizing the location of colonies, improving access, and providing the visiting publics with quality information and maps describing the colonies.

Cultural Resources - Because of historical events of the area and the unique significance of the grassland environment, we desire to expand interpretive services to local and visiting publics. Inventories of NFS lands for cultural resources have increased due to the land exchange program. This has subsequently increased the awareness of personnel on the Forest to these resources. Most known or potentially significant properties (both historic and prehistoric) are located within the Oglala National Grassland. Opportunities are available to expand public awareness of such areas as Warbonnet Battlefield and evaluations of prehistoric sites.

National Grassland Demonstrations - We believe this is of interest, particularly to Nebraska and South Dakota residents. The history behind the establishment of the National Grasslands is important to prairie state residents. Many do not realize one objective of the Bankhead-Jones Act was to provide demonstration opportunities to improve understanding of grassland agriculture and why this is so important in certain areas. In these same areas, wildlife and range projects have provided opportunities for visitor information and interpretation sites. State and Federal range and wildlife managers along with university personnel and local ranchers regularly visit this area to learn about progress and discuss management with National Grassland managers. Minimal efforts have been made in the past to educate the local and traveling publics concerning the features and values associated with the National Grasslands. Opportunities are plentiful throughout this area. Priority is being placed on developing an interpetive center at Wall, SD.

SAMUEL R. McKELVIE NATIONAL FOREST AND THE PINE RIDGE AND BESSEY PORTIONS OF THE NEBRASKA NATIONAL FOREST

This area is characterized by the rolling topography and the man-made forests of the Nebraska sandhills to the natural ponderosa pine forest and rugged buttes on the Pine Ridge area. Of the 77,000 square miles in Nebraska, less than 2 percent is publicly owned. Residents display a keen interest in public land management, notably as it pertains to recreation. There are numerous opportunities for the Forest Service to expand recreation use, including: (1) improving public access for dispersed recreation opportunities such as hunting and hiking, (2) expanding interpretive services, (3) increasing the number and quality of day use and camp site facilities, and (4) providing barrier-free facilities.

The **Pine Ridge** area provides opportunities to attract travelers on their way to the Black Hills National Forest and National Parks to the north and west. Highways 20 and 385 are well traveled highways to these areas. Coordination with the state and national parks, city and county governments can collectively increase local tourism for the benefit of all parties. Numerous opportunities such as joint development of recreation facilities, information systems, social activities, trail rides, etc., to name a few, are available. Partnerships of many kinds can be developed and nurtured.

The **Samuel R. McKelvie National Forest and Bessey** portion of the NNF were reserved from the public domain with the establishment of the National Forest System. A near-solid ownership pattern allows for easy access to public lands as well as minimizes conflict with owners of private lands. The Pine Ridge portion of the area does have the broken ownership pattern similar to the grassland areas described earlier. However, unlike lands in South Dakota, the State Section Line Law in Nebraska does not provide access as readily as in South Dakota. Thus, legal access to numerous parcels of public land is limited by long, round-about access routes.

Identifying Lands so People Can Find It. The Forest has been surveying the lands in the Pine Ridge portion of the area with the intent of having property lines marked. The Ranger District has and will continue to sign public land, some private lands, and public access routes.

Improving the Quality of Public Land Access. General access to lands within this area, whether by State, County or Forest Service roads, is reasonably good. However main roads that serve the interior portions of the area are in relatively poor condition. Several have been identified for major reconstruction and are awaiting financing. These are East and West Ash Roads on the Pine Ridge area and the Circle and South Natick Roads on the Bessey District. Our objective for this area is to reconstruct these roads within the next 10 years and provide at least 8 additional rights-of-way.

Off-Highway Vehicles - Use of OHV's is not restricted within the area. To date, only very minor resource damage is occurring, and this is on a portion of the Bessey Unit. This is being monitored and user contacts are being made. The Forest has and will continue to authorize OHV events as long as no significant resource damage is anticipated or occurs. No changes are anticipated in OHV management other than the possible development of a designated ORV area on the Pine Ridge District to reduce potential conflicts with other user groups.

Cultural Resources - Although cultural and historic resources are present throughout the area, it is the Bessey portion of the area that has the significant opportunities to expand public awareness of the cultural and historical sites. This area includes the oldest Federal tree nursery, now a blend of ultra-modern facilities and buildings included on the National Register of Historic Places. This is also the site of the country's largest man-made forest which includes a working fire tower in addition to a large, well designed and maintained recreation complex. Plans are in progress for two video - visitor information sites as well as a plan for identifying historic structures. We will welcome opportunities to further identify and make available to the public the cultural/historic resources in the area.

Camping Facilities - Additional opportunities are available for developed facilities within existing campgrounds and areas of concentrated use. Emphasis is placed on modifying existing facilities and developing new barrier-free facilities for the handicapped, such as suitable trails throughout the Bessey Recreation Complex and Nursery with interpretive turnouts. The Complex also includes an Arboretum with approximately 100 species of trees and shrubs identified. Ample opportunities exist for including additional species and an expanded signing and trail program to assist our visitors in locating the specimens.

Facilities have been added along the Dismal River for canoe access and dispersed camping for hunters and horseback riders. Opportunities are available for added facilities should user interest dictate more investment.

Trails - Numerous trails for hiking and horseback riding currently exist within this area. Current emphasis will be on improving the quality of existing trails while monitoring the demands that may develop for new trails. New trails, other than short interpretive trails, will be constructed only after analysis has determined that the demand for more trails exists. This analysis will include an assessment of the different types of trail uses that are now developing. There are major changes in the Rocky Mountain states, for example, as a result of mountain bike and cross-country skiing popularity.

Resource Management Interpretation - Numerous timber, wildlife and range projects have been implemented over the years through cooperative efforts of numerous persons, state colleges and commissions. These projects provide excellent opportunities for information, education and hands-on conservation projects. In fact, the people of Nebraska continuously support this idea.

The Pine Ridge Civilian Conservation Center has participated in numerous conservation projects on public land, including cities, counties, State and Federal lands. An opportunity exists to develop an interpretive display at the Center's Administrative Site.

Other Supporting Recreation Attractions - There are many other major recreation attractions, such as Fort Robinson and Chadron State Parks, which bring thousands of recreation visitors to the vicinity of the NNF. The nearby Soldier Creek Wilderness and Pine Ridge National Recreational Area on the Pine Ridge District and the Dismal, Middle Loop and Niobrara Rivers (which have good canoeing and fishing opportunities) on the Bessey unit are but a few examples. People using these areas can also use the National Forest System lands and appropriate facilities and opportunities are available for them.

Hunting - Due to the limited amount of public land and large variety of wildlife species in Nebraska, hunters are one of the primary users of our National Forest lands. The intermingled timbered and grassland habitats located on these units have been rated highly for habitat diversity. Cooperative habitat development projects with the State Game Commission as well planting of trees by college students over the past few years has significantly improved the existing diversity. Opportunities to continue and expand upon such cooperative efforts are strongly supported.

SUMMARY - The Recreation Strategy on the NNF does not offer many highly visible recreational opportunities such as remote high country hiking and hunting, developed downhill ski areas, etc., commonly thought to be associated with National Forest System lands. However, the NNF does offer unique opportunities as described earlier that some Forests cannot offer and that the people of Nebraska and South Dakota are proud of. Numerous opportunities are available to improve upon the current situation. To accomplish these objectives, the assistance of the general public, private and civic organizations, State agencies etc., are needed in the form of cooperators and partners, to share their ideas and physical and financial resources. Together, we can provide improved recreational opportunities on the Nebraska National Forest for our families and our childrens' families.

CHAPTER III - MANAGEMENT REQUIREMENTS

No Change

CHAPTER IV - MONITORING AND EVALUATION

No Change

CHAPTER V - INDEX

No Change

APPENDICES

No Change

FOREST PLAN MAP

No Change

Appendix G

United States Department of Agriculture
Forest Service
Rocky Mountain Region
11177 W. 8th Avenue
Box 25127
Lakewood, CO 80225-0127

Reply to: 2300 Date:MARCH 1, 1991

Subject: President's Initiative on America's Great Outdoors
Regional Direction Meeting, Denver, February 19, 1991

To: Forest Supervisors

Forest Recreation Staff Officers from all Forests and several Forest Public Affairs Officers met in Denver on February 19, 1991 to discuss and develop a program for Forest and Regional roles toward supporting the President's initiative. Several objectives were addresses.

1. Come to a clear understanding of what the President's Initiative is and how we should best convey this to Forest Service employees.

That message is that the President wants to increase the nations outdoor program. He wants to see an increase in partnerships that build on local economies. This proposal is for a major investment in the National Forests over the next three years. The proposal does not take away for other longstanding programs, such as minerals, timber or range management. The initiative increases funding for National Forest programs emphasizing three areas; (1) improving recreation, recreational fisheries, and wildlife-watching facilities; (2) managing National Recreation Areas and other Congressionally designated special areas (wilderness, wild and scenic rivers) and (3) providing forest interpretation and education. The proposal, in essence, is providing funds to implement the direction already encompassed in Forest Plans.

For Region Two, the FY 92 proposal shows the following increases, which is about 10 percent of the National program of $ 88 million:

-Recreation Management- $4.2 million addition for a total of $18.2 million
-Recreation Construction $2.7 million addition for a total of $7.5 million
-Wilderness Management- $733 thousand addition for a total of $3.4 million
-Cultural Resource Management- $344 thousand addition for a total of $1.6 million
-Trail Maintenance- $350 thousand addition for a total of $3 million
-Trail Construction-$350 thousand addition for a total of $2.6 million

All employees should be made aware of the proposal through family meetings, Ranger meetings, Forest or Regional training sessions and inhouse newsletters. Those key employees who have numerous public contacts, both formal and informal, should be given special attention so they understand the proposal. We need to built internal partnerships and involve other disciplines so better projects can be developed and so others don't perceive this as being a threat to their program. Strong support needs to be shown by the top leadership in the Region . Our retirees also need to be contacted so they have a better understanding of the proposal.

2. Develop intra-regional and statewide strategies. Both short and long term.

In all States except Wyoming it was felt that the strategies developed by individual Forests would be the the aggregated strategy without the need for close coordination. In Colorado, due to the high number of Regionwide organizations headquartered in Denver a larger role will be needed by the RO in making contacts with appropriate people. Wyoming has a unique situation and the Forest there had previously met to outline their approach and will have subsequent statewide meetings (including R-4 Forest) to finalize their strategy and marketing plan. Briefly, the Wyoming situation is that commodity groups are concerned about (1) the Forest Service direction for the State as expressed in the Greater Yellowstone Vision Statement and the draft Regional Guide, (2) there are several bills in the State Legislature to either define multiple use management or to transfer federal lands to State control and (3) that additional funding for recreational and wildlife benefits would exacerbate the perception that commodity resource funding would be further cut.

3. Develop a comprehensive information (marketing) package (including a Forest outreach document to supplement the national brochure) to build grass-roots support.

Each Forest should develop a marketing action plan to meet their situation. It should identify key opinion leaders, political and media representatives. The plan should identify potential new partners as well a present ones. Each Forest should develop and print a brochure which shows tangible products and/or services that they plan to achieve with the initiative funding. At the outset this should at least identify FY 92 projects. As developed, the brochure (or list) should be made available for other Forest Service leaders in the Region so they can be used in contacts with key people. The action plan and brochure should be complete by March 15, 1991

4. Establish criteria for developing a project list by Forests which demonstrate the "best bang for the recreation dollars"

Each Forest has the responsibility to establish project priorities from existing or yet to be developed "lists" of projects and services. Emphasis should be placed on:

A. Showcasing areas and projects.

B. Projects that contribute to an overall composite objective and support an identified rural economic need.

C. The project must integrate wildlife and fish, cultural and historic values, social benefits and interpretive opportunities.

D. The project requires minimum amount of Forest Plan amendment.

E. Has a strong focus on customer/visitor needs.

F. Should involve partnership joint ventures that have a high level of public support and involvement.

G. Shows tangible accomplishments in recommendations provided in recent GAO reports. (Trails, Wilderness, NRA etc.)

D. In developing CIP priorities the following criteria should be used.

1) Must be an existing facility, area, or have a direct link to an existing major complex. Something that in itself supports and focuses on the "big picture".

2. The project is identified in and/or supports aspects of the Forest's approved Recreation Strategy.

3. It is a project that can be completed and brought to an acceptable conclusion during the three year Initiative period.

4. Should serve a major segment of the customer/user clientele. i.e.: Do not up grade facilities or provide services at areas where the season-long occupancy rate is less than 40 percent.

/s/LEE CARR (for)

H. PETER WINGLE
Director, Recreation, Cultural Resouces,
Wilderness and Landscape Management

L.Carr/kk

CC: Forest Rec Staff
Forest PAO Staff
PAO
Rec Staff

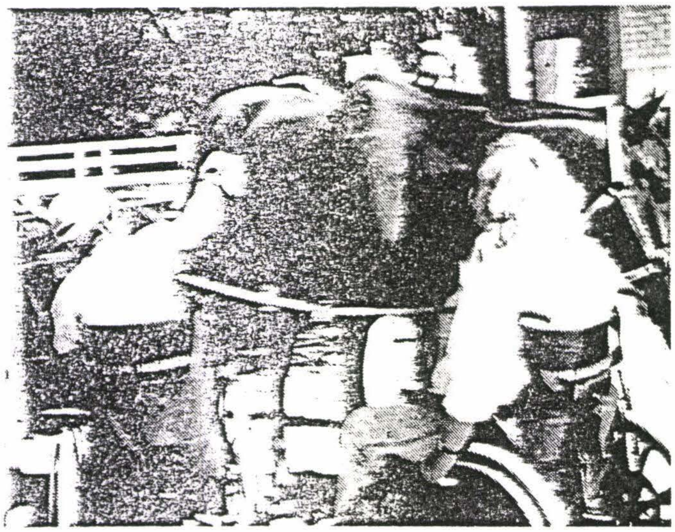
Appendix H

May want a rail to lead horse thru to
Keep horse close to rider ramp.

EQUESTRIAN ACTIVITIES

When planning for equestrian activities, total accessibility must be considered. Access to equestrian activities involves four basic considerations:

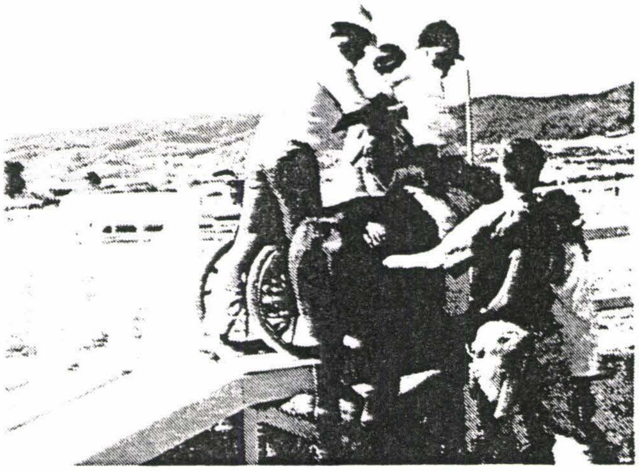
- Access to the place where horses are available.
- Transfer capabilities onto and off of the horse that are safe and secure.
- Access to the facilities to facilitate horse care.
- Provide facilities such as water hydrants, and corral gates that are accessible.

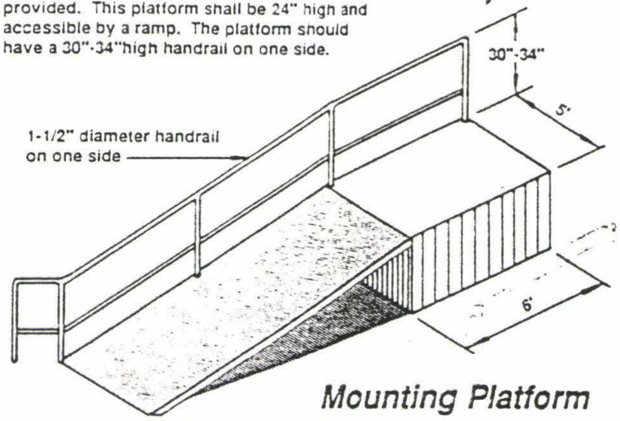


Equestrian facilities should be located on a continuous access network with appropriate support facilities.

MOUNTING PLATFORM

The transfer of the rider from a mounting platform to the horse, and vice versa, shall be facilitated with maximum dignity and independence. Mounting and dismounting, for some riders, is made easier by getting to the level of the horse's stirrups. For this purpose, a platform similar to the illustration should be provided.




1-1/2" diameter handrail on one side
30"-34"
5'
6'

Mounting and dismounting, for some riders, is made easier by getting to the level of the horse's stirrups. A platform should be provided. This platform shall be 24" high and accessible by a ramp. The platform should have a 30"-34"high handrail on one side.

what about having a small board around the edge?

Mounting Platform

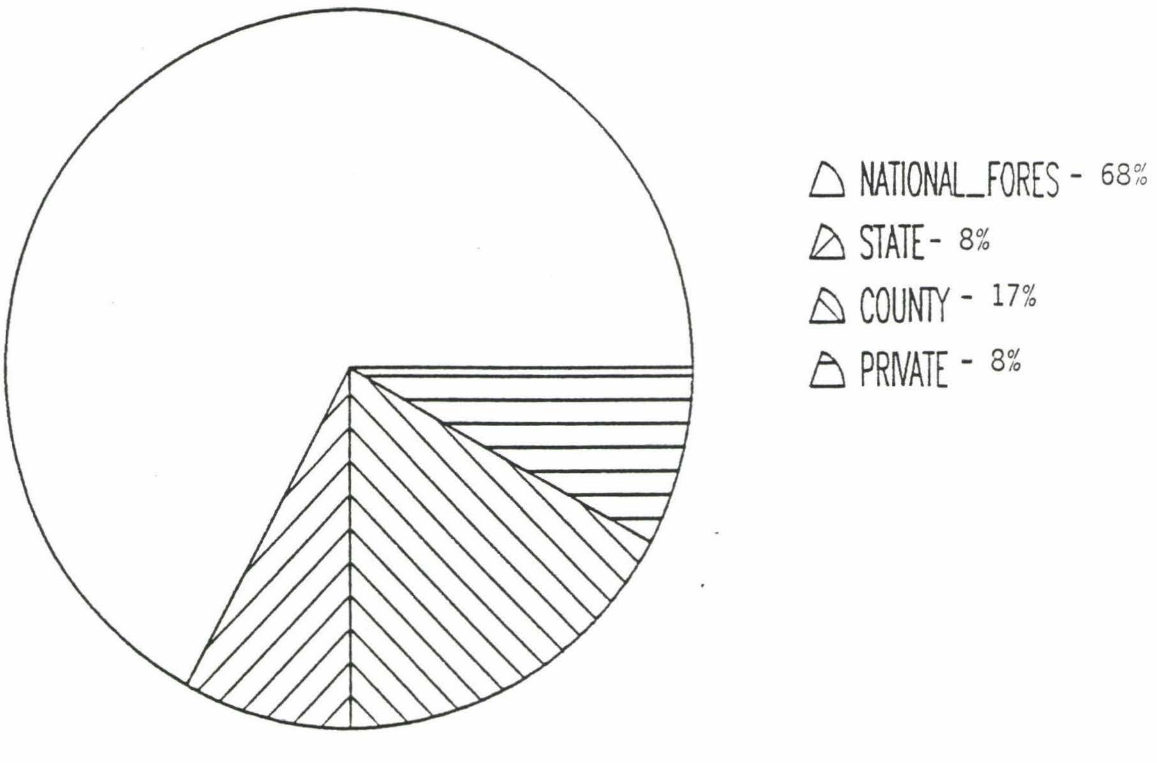
PLAYGROUNDS

By participating in challenging play activities, children develop muscles and coordination, self-esteem and the ability to work with others. Playgrounds can offer a spectrum of challenges in a safe and accessible environment if the following considerations are kept in mind:

- Level, firm paths and surfacing allow the equipment, courts, bathrooms, and drinking fountains to be used by people with limited mobility.
- Carefully designed equipment permits each child to develop abilities at an individual pace. By designing equipment that can be

Appendix I

LAND OWNERSHIP ALONG PINE RIDGE TRAIL



Appendix J

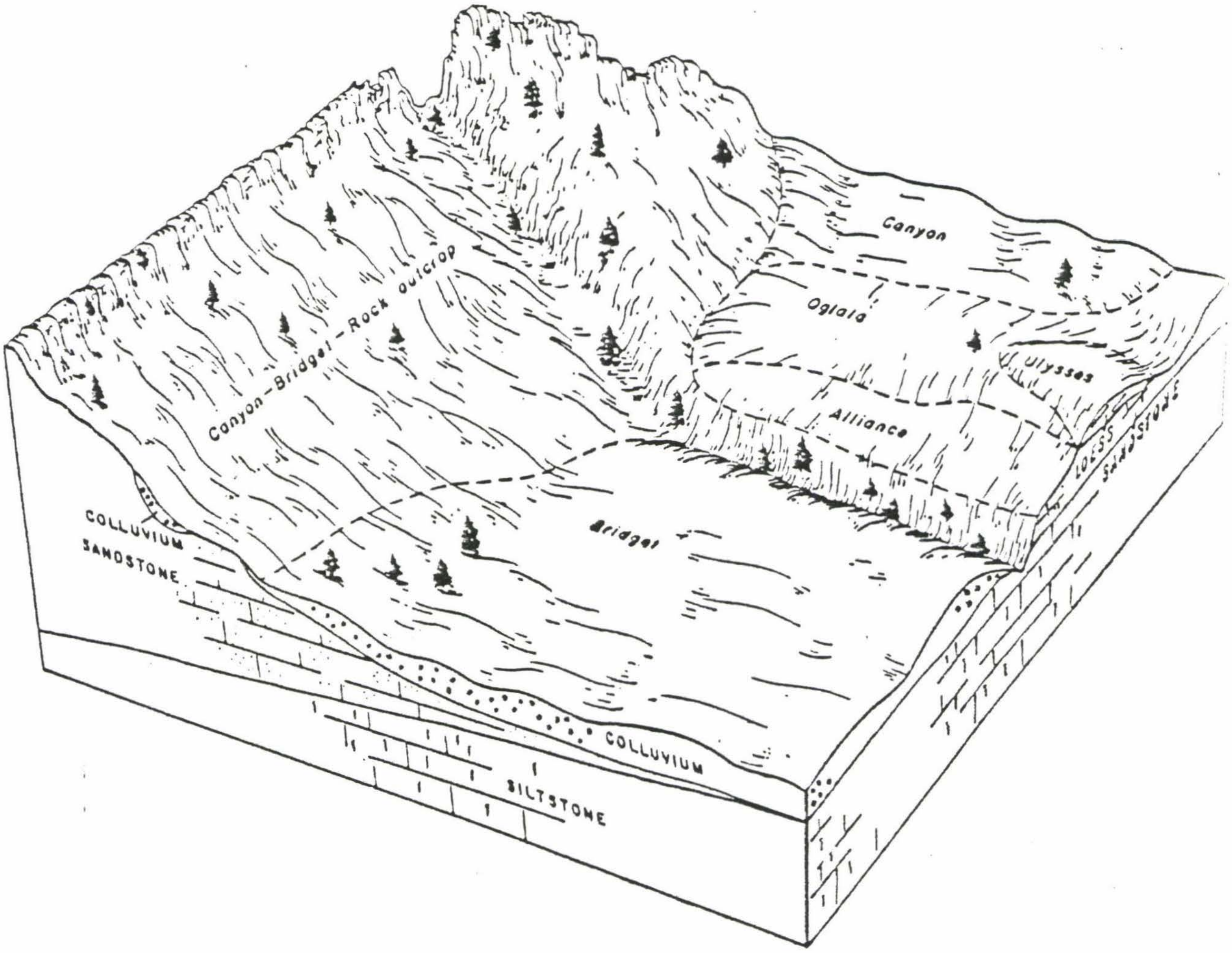
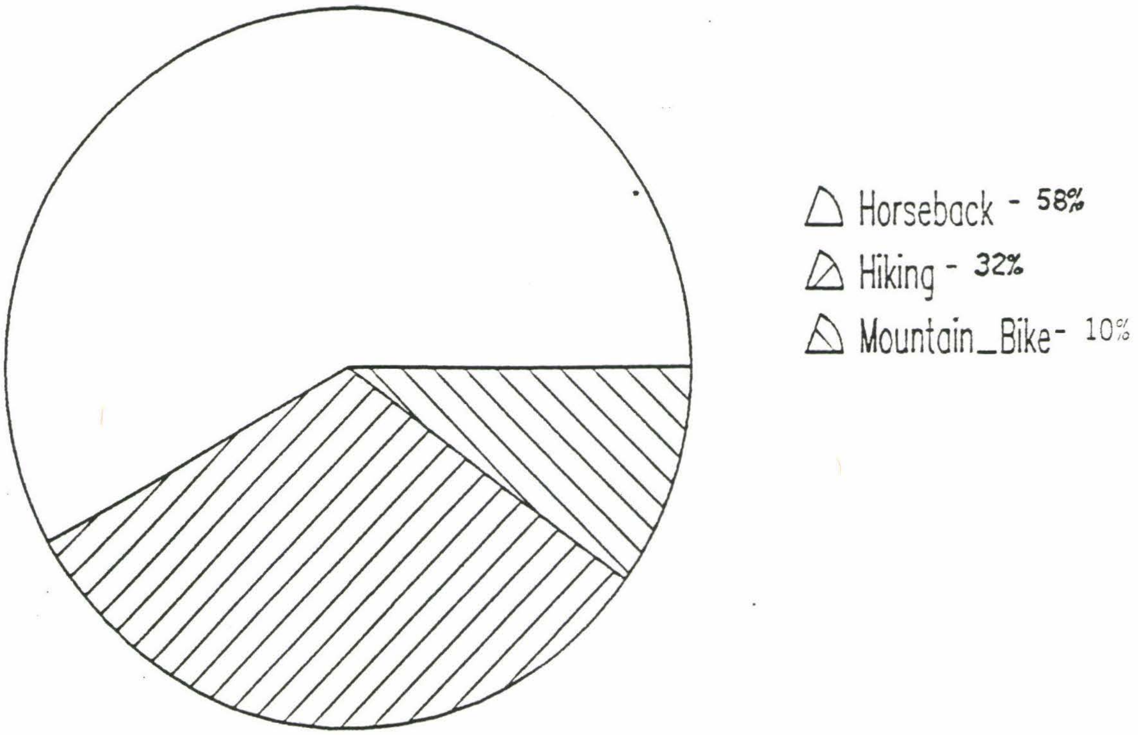

Canyon
Oglala
Ulysses
Alliance
Canyon-Bridget-Rock outcrop
Bridget
COLLUVIUM
SANDSTONE
COLLUVIUM
SILTSTONE
LOESS
Sandstone

Figure 1. Typical pattern of soils and parent material in the Canyon-Bridget-Oglala association.

Appendix K

CURRENT USE OF TRAILS



Appendix L

The following information on Trail Standards and Guidelines is from the Trails Management Handbook, FSH 2309.18, Sections 2.31 and 2.33.

TRAIL CONSTRUCTION AND MAINTENANCE GUIDES

Although an assortment of trail types are discussed in this handbook, not every National Forest unit or subunit must provide all types or any specific combination of trail types. Planning should determine the specific needs. A variety of other special trail activities exists, including cave, glacier, underwater, and dogsled opportunities. Regional guides may be developed for these opportunities as needed. If a particular activity becomes common, a Service-wide Forest Service handbook guide will be developed.

Hiker Trail Guide

Design and Location Considerations

Trails for hiking generally require less development than other travel modes and offer maximum opportunity to bring users close to nature. Tread width, clearing width and height, alignment, and structures for crossing streams normally are of a smaller scale (see Hiker Trail Guide attached). If more than one travel mode is accommodated on a hiker trail, consult the appropriate guide for the other modes to ensure adequate standards are incorporated.

On hiker trails, grades leading to and away from switchbacks should not be less than 10 percent. Reduce the grade on the turn to less than 10 percent for a distance of 5 or 6 feet. The radius of switchbacks for hikers can be very tight; 2 feet to 4 feet, for example. Some method of preventing crosscutting should be used; for example, rocks, logs, or native vegetation.

When hiker trails cross wet areas or streams, select routes that require the fewest structures. In designing structures to cross wet areas, the tread, whether in the form of stepping stones or flattened logs, should be at least 12 inches wide. Set stepping stones no more that 24 inches apart.

Design bridges to prevent overloading, especially if they are located in areas used by pack and saddle stock.

The upper limit for grade for hiking trails reaches the lowest class of mountaineering scramble trails. Trails requiring the use of nonconstructed hand and toe holes or ropes should not be included in the hiker trail category.

Hiker Trail Guide

	Easiest	More Difficult	Most Difficult[1]
Grade			
Max. Pitch Grade	20%	30%	+30%
Length	100'	300'	500'
Clearing[2]			
Width	48"	36 to 48"	36"
Height	8'	8'	8'
Tread[3]			
Width	18" to 24" Obstacle Free	12" to 18" If needed, depending on volume and drainage	12"
Surface	Spot Gravel surfacing	Not surfaced---leave roots, imbedded rocks, and some logs.	No graded tread except on side slopes over 50% where safety or resource damage is a problem.

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[1] Upper limit of grade and pitch length for most difficult trails depends on soil type, amount of rock, vegetation type, and other conditions affecting stability of the trail surface.

[2] Curve alignment to avoid cutting large trees.

[3] Increase tread width 6 inches on switchbacks or where side slopes exceed 60 percent.

Design and Location Considerations

This trail type accommodates a wide variety of pack and saddle animals, including horses, mules, donkeys, burros, and others. Some trails are simple day-use bridle paths and others are built to accommodate long strings of pack animals on journeys lasting many days. The combination of shorter and longer trails affords opportunities for natural experiences for the greatest range in user ability and knowledge.

Give special consideration to the care and safety of livestock and their riders when locating pack and saddle trails. If practical, provide reasonable access to streams or lakes for stock watering at intervals not to exceed 10 miles. Inform visitors if water intervals are excessive. Avoid locations near campgrounds or other concentrated-use areas where dogs or loud noises could startle pack animals. If the trail must cross highways or railroads, select sites with adequate sight distance.

Consider the use of climbing turns if the terrain permits. Design switchbacks with a curve radius as long as possible, with a minimum of 5 feet. To discourage shortcutting, design grades of at least 10 percent to 15 percent for a distance of 100 feet to and from switchbacks. Consider using a rock or log barrier for a distance of 15 to 30 feet back from the turning point.

Clearing needs vary depending on whether trails are designed for day rides or for pack animals. Pack clearance normally is measured at a point 30 inches above the center of the tread. Three feet on both sides of the centerline is the minimum clearance for pack trails (see Pack and Saddle Trail Guide attached).

Additional widening is needed to accommodate pack clearance on trails cut through solid rock on steep sidehills. Along a precipice or other hazardous area, the trail base should be at least 48 inches to 60 inches wide to be safe for both animal and rider.

Pack and saddle animals can cause severe wear and tear on the trail tread, especially when soils are wet. When possible, locate trails on stable soil types or on sideslopes where water can be drained away. Gravel surfacing, turnpiking, or puncheons may be needed on wet sections.

Fords are preferred to bridges for stream crossings, provided the velocity and depth of the water is acceptable during the normal use season. Locate good natural fords and route the trail to them rather than build a ford. Generally, streams can be forded safely if the depth of water is less than 24 inches. Construction of a ford requires widening the trail base to a 36 inch minimum, removing large rocks, and leveling the stream bottom to make a relatively smooth and level crossing. Widen the streambed to reduce depth and velocity as a means of making a ford viable. Ice buildup during late fall may be an important factor to consider.

If a decision is made to build a bridge for pack and saddle animals, select a bridge site with an adequate foundation for abutments and stream piers. The bridge must have a load-carrying ability equal to the maximum number of loaded animals that can occupy it at one time or the maximum anticipated snowload, whichever is greater. Design railings to prevent packs from getting caught. The minimum width of pack and saddle bridges is 48 inches.

Pack and Saddle Trail Guide

	Easiest	More Difficult	Most Difficult[1]
Grade			
Max. Pitch Grade	15%	25%	+30%
Length	200'	300'	500'
Clearing[2]			
Width	8'; 6' between large trees. Pack clearance must be 3' from a point 30" above grade of tread.	Pack clearance must be 3' from a point 30" above grade of tread.	3' to 4' wide
Height	10'	8'	Maximum 8'
Tread[3]			
Width	24"	24"	18"
Surface	Surfacing as needed for stability. Reinforce cross drains with logs or rocks on steep gradients (greater than 10%). Special emphasis on puncheon or turnpikes in bog holes. Construct extra trailbed width in steep terrain.	Leave roots and imbedded rocks. Cross drains permanent with natural roots, rocks, or imbedded logs.	Not graded except on side slopes greater than 30%.

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[1] Assume pack animals normally are not accommodated on most difficult trails so less clearing width is needed. Same holds true for day-use horse trails. The upper limit for most difficult saddle animal trails depends on the soil type, amount of rock, vegetation types, and other conditions affecting stability of the trail surface. The skill of the rider and the condition of the animal also are important considerations.

[2] Along a precipice or hazardous area, the trail clearing width should be at least 48 to 60 inches to provide safety to the riders and their animals.

[3] Increase tread width 12 inches on switchbacks. Tread width on special sections, such as fords or turnpikes, should be at least 36 inches.

Mountain Bike Trail Guide

Mountain bikes can utilize trails and routes constructed for other purposes. Mountain bikes can be ridden on hiker, pack and saddle, and motorized bike trails and four-wheel drive ways (see Mountain Bike Trail Guide attached).

Development of more elaborate paved bike paths is not considered a normal responsibility of Forest Service trail management, though occasional cooperative efforts with adjacent local agencies may result in a paved bike path on a National Forest. The basic design for this type of trail should follow guidance developed by numerous transportation and development agencies.

Mountain Bike Trail Guide

	Easiest	More Difficult	Most Difficult[1]
Grade			
Max. Pitch	10%	30%	+30%
Max. Sustained Pitch	5%	10%	15%
Length	100'	300'	500'
Length of Trip			
Day	10-20 mi.	20-40 mi.	40-50 mi.
One-half Day	5-10 mi.	15-20 mi.	20-25 mi.
Clearing[2]			
Width	48"+	36" - 48"	36"
Height	8'	8'	Max. 8'
Tread[3]			
Width	24"+	12" to 24"	12"
Surface	Relatively smooth	Sections of relatively rough surface	Varied---some portage required

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[1] Upper limit of grade and pitch length depends on soil type, amount of rock, vegetation type, and other conditions affecting stability of the trail surface.

[2] Curve alignment to avoid cutting large trees.

[3] Increase tread width 6 inches on switchbacks or where side slopes exceed 60 percent.

Cross-Country Ski Trail Guide

Design and Location Considerations

Cross-country ski trails may be designated specifically for winter travel but should also be considered for use during the snow-free seasons. Opportunities to enjoy the natural setting are generally enhanced in the winter but should be considered under both winter and summer conditions. Locate or review potential trail locations during the winter months.

Locate cross-country trails where reliable snow conditions exist for 2 to 3 months. Utilize topography to extend the period of snow cover. Consider aspect, prevailing wind direction, shading, and microclimate factors.

Avoid avalanche hazards. Consult with people knowledgeable in local avalanche hazards before developing cross-country ski trails.

Avoid hazardous stream and lake crossings. Normally, 6 inches of hard blue ice is considered safe for cross-country ski trails.

Avoid locating trails under dense canopies, especially in tall, old-growth stands. The canopy intercepts much of the snowfall, and when the air temperature rises, large chunks of snow fall on the trail.

Trails are rated by difficulty similar to downhill ski runs: easiest, more difficult, and most difficult. Although this is a relative rating, trails designated as easiest should always be designed for novice skiers under normal snow conditions. Trails rated most difficult should provide challenges, but no unusual difficulties, to experienced skiers. More difficult trails will fall somewhere between these two extremes (see Cross-Country Ski Trail Guide attached).

Provide only sweeping curves on downhill sections. Locate outruns to permit the user to slow down before turning. A check-space in midslope is desirable on long downhill runs. Alignment must be correlated with grade. Avoid sharp turns on snow trails.

Trail Width and Tread Considerations

Cross-country ski trail widths vary depending on the terrain, steepness of the trail, sharpness of curves, amount of use, and number of tracks. On flat or gently rolling terrain (up to grades of 3 percent), single-track groomed trails are cleared to 6 to 8 feet wide; double-track trails are cleared to 10 to 12 feet wide. Steeper, uphill sections should include extra clearing width where herringbone or sidestep skiing techniques might be used. The extra clearing width should be one half times the normal width, up to 14 feet. Downhill sections require extra widening commensurate with the speed of the hill: the lower portions and runout require the most widening, while the upper portions require less. Normally, a downhill run is cleared to 1.5 times the normal width from approximately one-third to two-thirds of the way down the hill. From two-thirds down to the bottom and through the runout, the trail is cleared to twice the normal width (see Cross-Country Ski Trail Clearing Guide attached).

Length

Accommodate user needs for different distances and degrees of challenge by providing cutoffs on a system of loop trails.

Recommended Lengths	Half Day	Full Day
Easiest Trail	3.2 miles	6.4 miles
Most Difficult Trail	6.4 miles	9.5 miles

Height

Clear overhead branches and obstructions the full width of the trail to a height of 10 feet above the average peak season snow depth.

Bridges

The minimum width for all snow trail bridges is 6 feet. All ski trail bridges must be designed to allow skiers to stop safely before crossing and must provide adequate track width under maximum snow cover. Bridges on groomed trails must accommodate the width of grooming equipment.

Intersections

Approaches to intersections have grades of 5 percent or less to allow for speed control. Clear intersections to a diameter twice the trail width.

Marking Standards

Cross-country ski trails are marked so travelers unfamiliar with the trail can follow the trail during poor weather conditions, with no tracks to follow, under relatively poor light conditions. See the Sign handbook for guidance on marking trails.

Cross-Country Ski Trail Guide

	Easiest[1]	More Difficult[1]	Most Difficult[1]
Greatest Single Climb (elevation gain of single continuous climb)	35'	70'	140'
Elevation Differential (lowest to highest point on trail)	100'	250'	500'
Total Climb (sum of all elevation gains)	150'	400'	650'
Greatest Sustained Gradient (over 300' trail distance)	7.5%	12%	17%
Greatest Short Gradient (under 100' trail distance)	10%	20%	--

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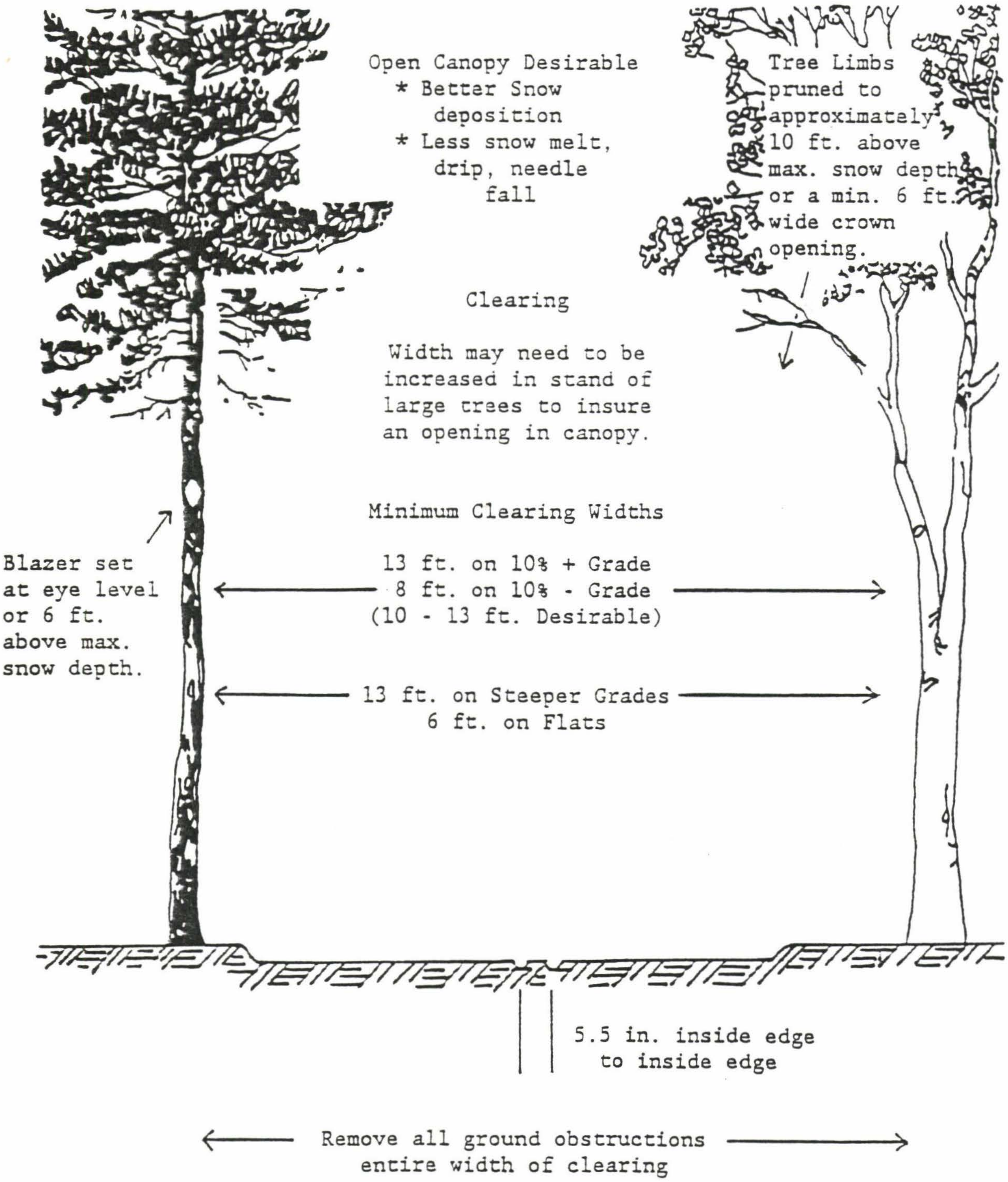
[1] Based on a 3-mile loop. These are maximum guides for smooth, wide, straight trails with good outruns. Correlate grade with distance to avoid excessive speed buildup.

Cross-Country Ski Trail Clearing Guide



Open Canopy Desirable
* Better Snow deposition
* Less snow melt, drip, needle fall

Tree Limbs pruned to approximately 10 ft. above max. snow depth or a min. 6 ft. wide crown opening.

Clearing

Width may need to be increased in stand of large trees to insure an opening in canopy.

Minimum Clearing Widths

13 ft. on 10% + Grade
8 ft. on 10% - Grade
(10 - 13 ft. Desirable)

Blazer set at eye level or 6 ft. above max. snow depth.

13 ft. on Steeper Grades
6 ft. on Flats

5.5 in. inside edge to inside edge

Remove all ground obstructions entire width of clearing

Barrier-Free Trail Guide

Classifying difficulty levels of barrier-free trails is difficult. Generally, however, difficulty increases with increased grade, roughness of tread, and length. Because disabilities vary greatly, it is difficult to classify a trail as most difficult and state with assurance that an individual with a given handicap could manage the trail.

Use the Barrier-Free Trail Guide that is attached during the design phase to analyze the trail conditions for barrier-free trails.

Post signs along the trailhead and specify the trail difficulty rating. The rating system also may be explained. Be sensitive about the use of the term "handicapped"; for example, do not identify a trail as "for the handicapped."

Notify users of the vertical distance they will climb. Signs to accommodate the partially sighted should have large print (18-point minimum or 3/16"). Signs that are 32 inches above the ground are the easiest to read, and the trail adjacent to the sign should have a flat grade and be wider than normal. Supply such information as the locations of telephones, doctors, and hospitals. Trail maps, educational signs, and interpretive signs are also useful to the hiker.

Barrier-Free Trail Guide

	Easiest	More Difficult	Most Difficult
Width of Trail Tread and Turnouts			
One-way	4'	4'	3'
Two-way	8' or 4' with turnouts 2' wide and 5' long.	8' or 4' with turnouts 2' wide and 5' long.	4' or 3' with turnouts.[1]
Length	0 to 1/2 mile	1/2 mile to 1-1/2 miles	1-1/2 miles to 5 miles
Surface	Concrete or asphalt with subgrade of rock.[2]	Asphalt, soil cement, very fine crushed rock (3/4"-): solidly packed surface.[2]	Hard packed sandy loam, some rocks and roots allowed. Fill over large obstructions and in wet areas.[2]
Clearing Width and Type	Clear understory brush to 1' from trail with slight slope toward trail.	Clear understory brush to 1' from trail: no abrupt dropoffs adjacent.	Clear underbrush to 6" from trail.
Slope (grade) and Vertical Climb	±1% to 3%[3] Vertical climb up to 80'.	+3% to 6% Short, steep pitches can be handled. One-way trails with continuous favorable slope over 5% should be avoided.[3] Vertical up to 160'.	6% to 8% Short pitches up to 12%.[3]
Cross Slope (pitch)[4]	Flat, with slight crown for drainage.	1:30. Use grade dips 5' to 8' long as needed.	1:20. Use Grade dips 5' to 8' long as needed.

Barrier-Free Trail Guide (continued)

	Easiest	More Difficult	Most Difficult
Trail Edge (rails, curbs: use natural materials whenever possible).	Curb used where necessary for safety; rails 32" high for safety.	Curbs or railings only for safety or in areas with side slopes greater than 40%.	Curbs or railings only for safety.
Rest Stops (use natural materials whenever possible: 4' deep and 5' long).	Every 100' to 150' Benches, sitting rocks, turnouts, shelters: benches 17" high.	440' to 500'	800'

[1] As a rule, a steeper grade requires a wider tread, but this element can change with difficulty.

[2] Bridges and boardwalks should have nonskid material, with boards perpendicular to the direction of the trail and close together to prevent crutches from lodging in cracks.

[3] On slopes greater than 5 percent for 60 feet or more, allow a 6-foot level distance for resting.

[4] Consistent pitch is important for ease of travel in wheelchair.